

THE INDIAN HEALTH SERVICE



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Superior Health Information Management  
Now and for the Future

**IHS Technical Conference**  
**June 20, 2006**



# Objectives

- ~~Why Electronic Health Records?~~
- ~~Demonstration~~
- Overview of EHR
- Current Status
- Site Metrics
- New Features in EHR
- Preparation for EHR





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## ABOUT IHS

## SITE MAP

HELP



# IHS • EHR Electronic Health Record

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## EHR Clinical Overview

## EHR Technical Overview

## EHR Walk Through

## Preparing for EHR

## RPMS EHR Training Courses

### EHR Current Status

### Key EHR Program Contacts

### Patient Information Management System (PIMS) Application

## EHR Presentations

EHR FAO

Feedback  
- Reply

### User Access

- Add User

- Update User

- Approve User

EHR Listserv

### Clinical Applications

## EHR Presentations

This page contains links to presentations that have been made recently about the IHS Electronic Health Record. They are shared for your interest and information.

Please note that information in these presentations was current as of the date they were presented. Some information may no longer be current, as the software development and testing process is fluid, and some issues change over time. Presentations will be removed from this site if their content is no longer relevant.

- This presentation was offered in workshops at the 2005 Annual IHS Combined Councils Conference in San Diego. It includes some early metrics from EHR sites as well as discussion of suggested preparation activities.  
**NCCD 022805** [PPT-2.2MB]
- The following presentation was made in August 2004 to the IHS Technical Conference held in Scottsdale. The emphasis was on facility preparation for EHR. The open forum including presentations by Dr. Byron and Rudd on the Crow and Warm Springs experience is not captured in this show.  
**IHS EHR Tech Conf 022804** [PPT-1.1MB]
- This presentation was offered by Dr. Miles Rudd at the IHS Technical Conference, in August 2004. It describes the EHR implementation experience at Warm Springs Health Center.  
**EHR Business Process Improvements** [PPT-292KB]
- This presentation was prepared for a site manager's conference in August 2004. It describes the EHR preparation process from the Warm Springs perspective.  
**Preparing for EHR** [PPT-647KB]
- The following presentation was made in April 2004 to the joint Health Information Management and Business Office conference held in Reno NV. The emphasis in this presentation is on the impact of EHR on medical records, data entry, coding and billing staff.  
**IHS EHR HIM-BO Mtg 042204** [PPT-272KB]
- The following presentation was made in May 2004 to the national "Toward an Electronic Patient Record" meeting sponsored by the



# The EHR Challenge for IHS

- Produce or acquire an Electronic Health Record system that:
  - Meets clinical and business needs of both Tribally and Federally operated facilities
  - Is scalable to the needs of facilities ranging from small rural clinics to medium-sized hospitals
  - Is affordable to facilities with no resource cushion or ability to borrow
  - Is sustainable into the future



# RPMS – Elements of an EMR for over 20 Years

## Existing elements

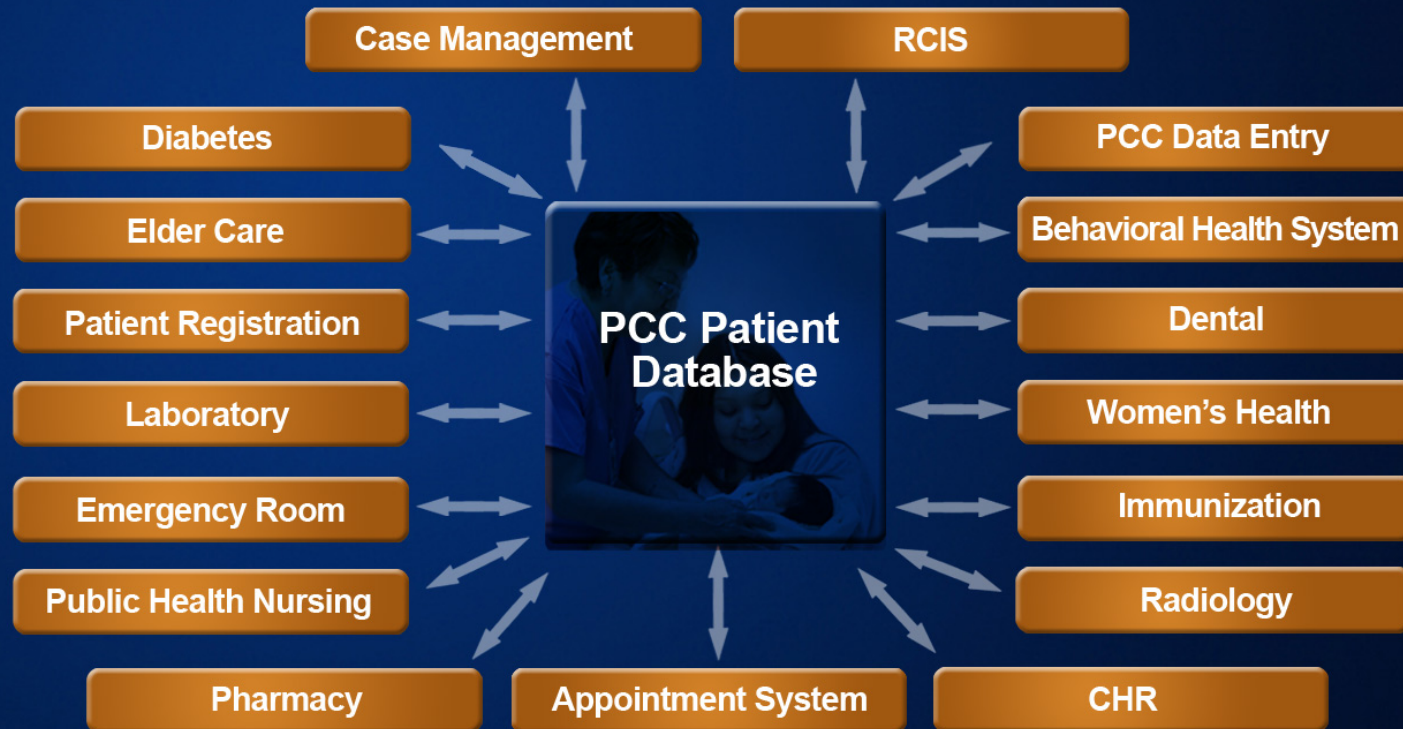
- Registration
- Scheduling
- Pharmacy
- Radiology
- Laboratory
- Immunizations
- Reminders (passive)
- Problem List
- Health Summary
- Other PCC functions
- Billing
- More . . .

## Lacking elements

- Provider order entry
- Note authoring
- Point of care data entry
- GUI usability
- Active reminders & notifications



# RPMS Integrates Multiple Clinical Systems





# What is RPMS EHR?

- Integrated RPMS database
  - Applications adapted from VHA or developed by IHS
- Graphical User Interface
  - User-friendly and intuitive access to RPMS database for clinicians and other staff
  - Components derived from VHA (CPRS) or developed internally for I/T/U needs
  - Proprietary “framework” for presentation of various GUI components
    - Licensed from Clinical Informatics Associates (now Medsphere)

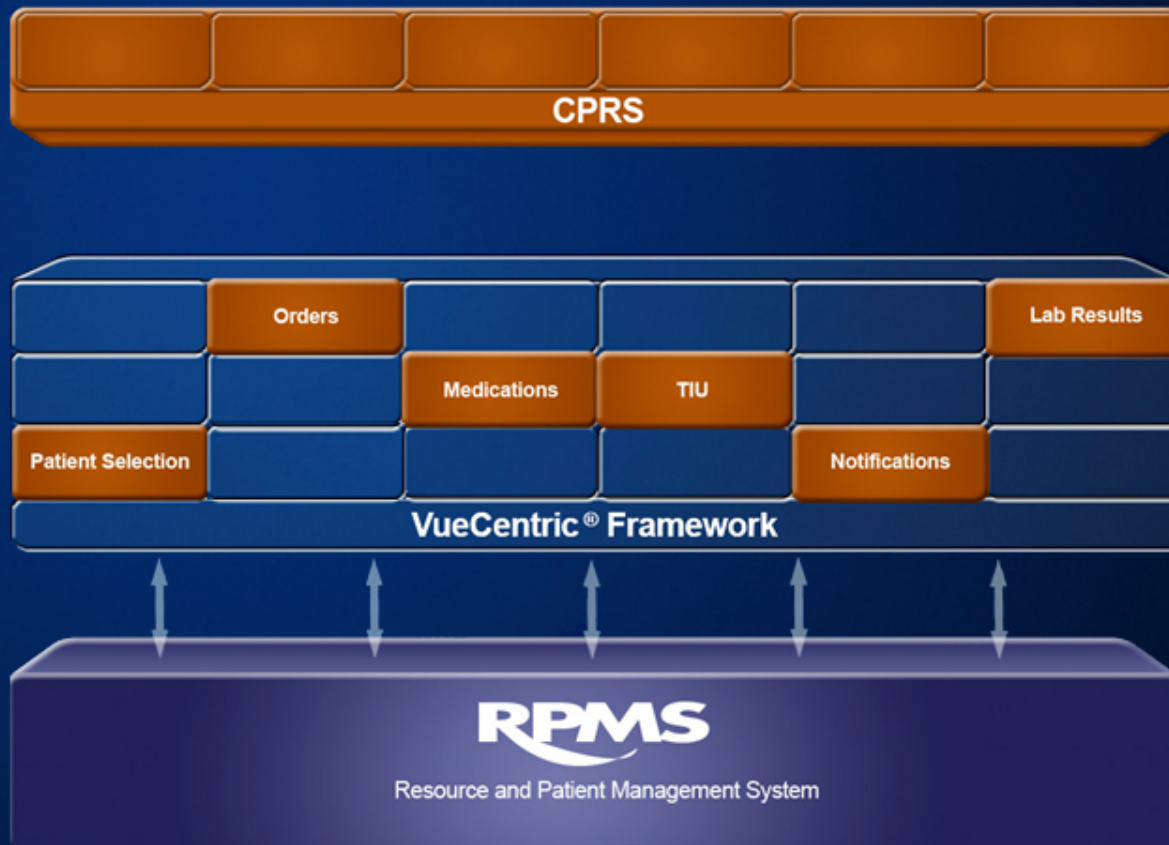


# The EHR Componentized Framework



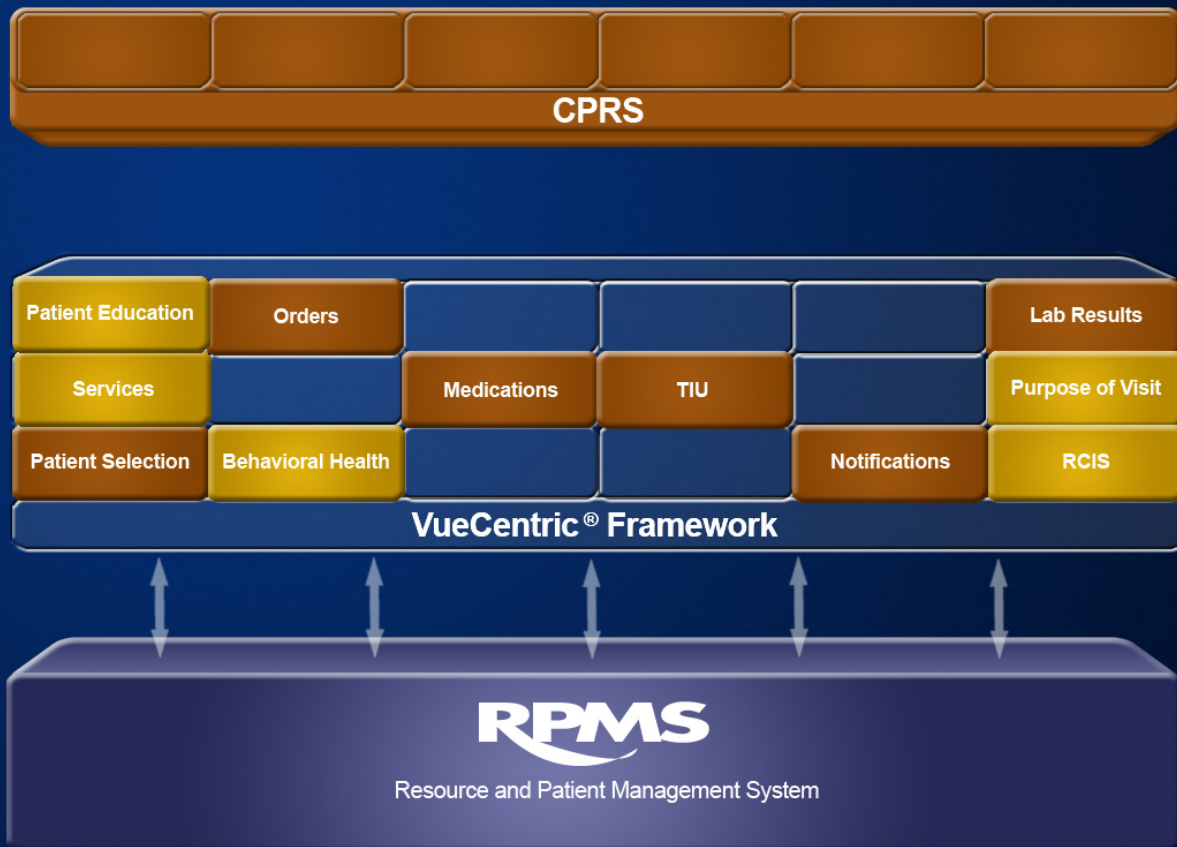


# The EHR Componentized Framework



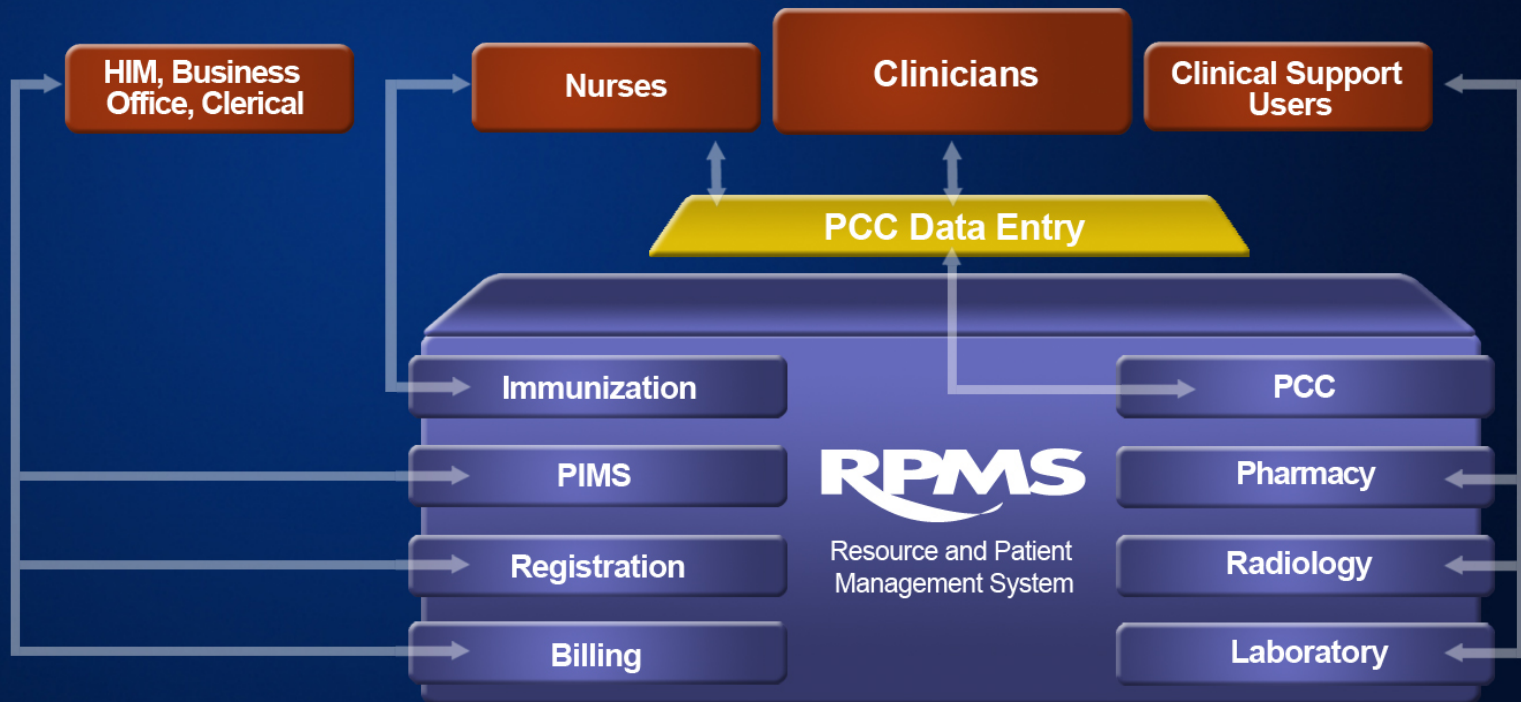


# The EHR Componentized Framework



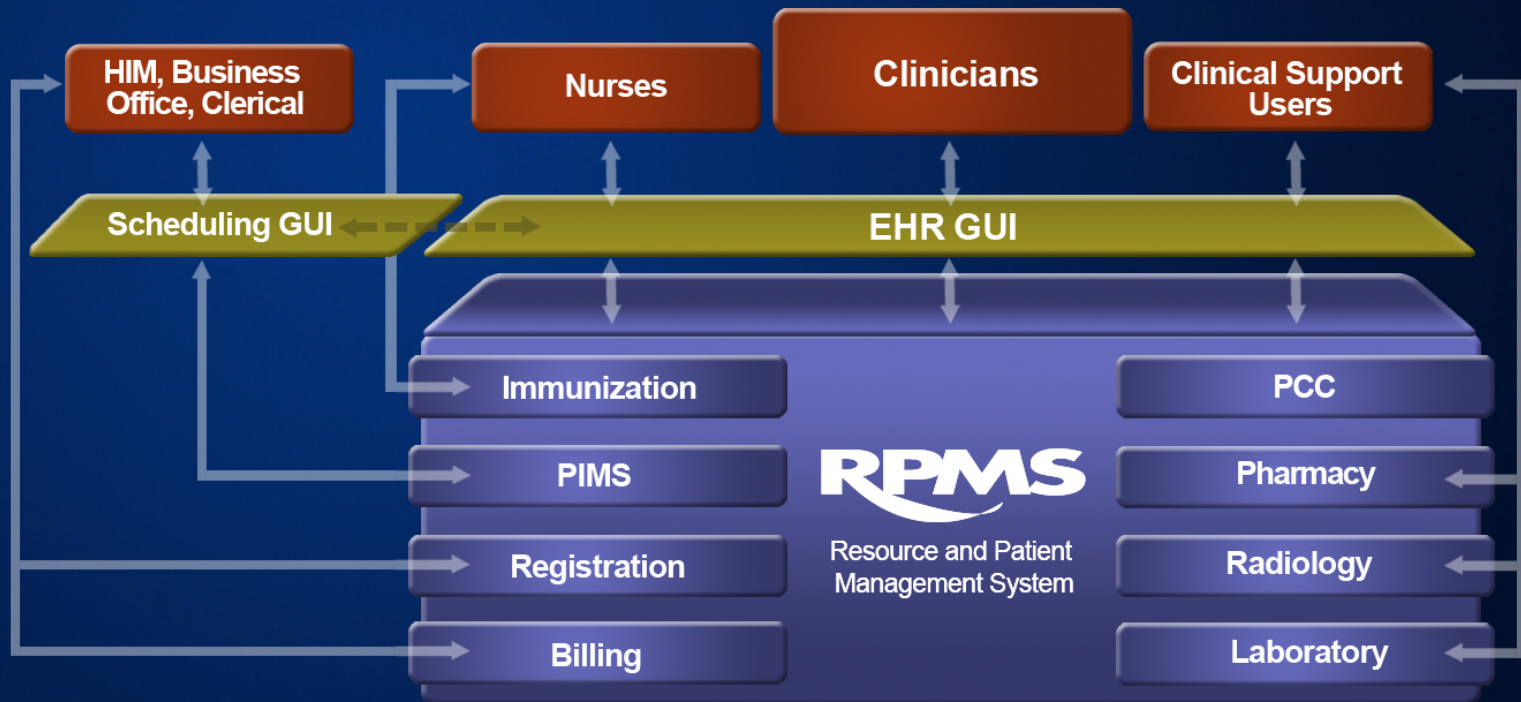


# RPMS/EHR/User Relationships





# RPMS/EHR/User Relationships





# 1993...1994....1996....1997....2000....2001...2004...2005

## JANE DOE LIFETIME DATA

Immunizations

Health Promotion

**Immunization Forecast:**

**Contraindications:**

HEP B PED due

DTaP past due

PEDVAXHIB past due

06-Jul-2005

DTaP

Parent Refusal

Immunization History:

Print Record

Due Letter

Add

Edit

Delete

Vaccine	Visit Date	Age@Visit	Location	Reaction	Volume	Inj. Site	Lot	VIS Date	Administerd By
HEP B PED	06/06/2005	12 mths	Health Department-Jefferson County			Left Thigh IM		03-Jul-2005	MILLER,SHARON A

Skin Test History:

Print Record

Add

Edit

Delete

Visit Date	Skin Test	Location	Age@Visit	Result	Reading	Read Date	Reading Provider	Administered By
07/06/2005	PPD	Warm Springs	13 mths	Negative		07/04/05	JOHNSON,CAROLYN	JOHNSON,CAROLYN

# RPMS-PCC



# Advantages of RPMS EHR

- Retains existing RPMS database
  - Users have access to all prior RPMS data
- Same data from EHR and non-EHR sites
  - No interfacing or reformatting of data for national exports
- Extensive customizability at local level
- Full integration of RPMS applications
- Very low cost, no license fees
- Future growth/development
  - Ongoing partnership with VHA, other developers





Demo Patient

1 20-Mar-1947 (57) F

GENERAL 22-Feb-2005 13:48

LAMER, CHRISTOPHER CLAYTON

Primary Care Team Unassigned

Postings

CAD



## Alerts

No Alerts Found

## Crisis Alerts

Crisis Alert ▲	Date
ADVANCE DIRECTIVE	25-Jan-2005 13:47
CRISIS NOTE	06-Jul-2004 11:12

## Adverse Reactions

Agent ▲	Reaction
ALLERGIC TO FLIES	WEIGHT GAIN
ASPIRIN	
BEE STINGS	HIVES, ANXIETY
EASY OPEN CAPS	EASY OPEN CAPS
EGGS	RASH
FLIES	
IODINE	ANAPHYLAXIS
METOCLOPRAMIDE	DROWSINESS
PEANUTS	HIVES
PHENYLEPHRINE / PRO...	muscle irritability
POLLEN EXTRACTS FRE...	CHILLS
POVIDONE IODINE	RASH
SILVER NITRATE	DERMATITIS, CONTAC...

## Reminders

No Reminders Found

## Problem List

Error Retrieving Problem List...

## Appointments/Visits

Appointment/Visit	Date ▼	Status
Payne	12-Apr-2005 14...	
Payne	29-Mar-2005 1...	CANCELLED BY PATIENT
FARRELL FP-15	16-Mar-2005 1...	
Payne	01-Mar-2005 1...	
ULTRASOUND-2	25-Feb-2005 0...	CANCELLED BY PATIENT
PT student	22-Feb-2005 1...	CANCELLED BY CLINIC
CONTINUITY O...	22-Feb-2005 1...	AMBULATORY
HYDE-G SAME ...	22-Feb-2005 1...	
<PHYSICAL TH...	22-Feb-2005 0...	AMBULATORY
<PHYSICAL TH...	22-Feb-2005 0...	AMBULATORY
HYDE-G SAME ...	18-Feb-2005 1...	CANCELLED BY CLINIC
HYDE-G SAME ...	18-Feb-2005 1...	CANCELLED BY CLINIC
PT student	18-Feb-2005 1...	CANCELLED BY CLINIC
<PHYSICAL TH...	18-Feb-2005 1...	AMBULATORY

## Lab Orders

Lab Order ▲	Status	Date
HGB BLOOD S...	COMPLETE	02-Feb-2005 10:52
URINE DIPSTIC...	COMPLETE	14-Feb-2005 12:39

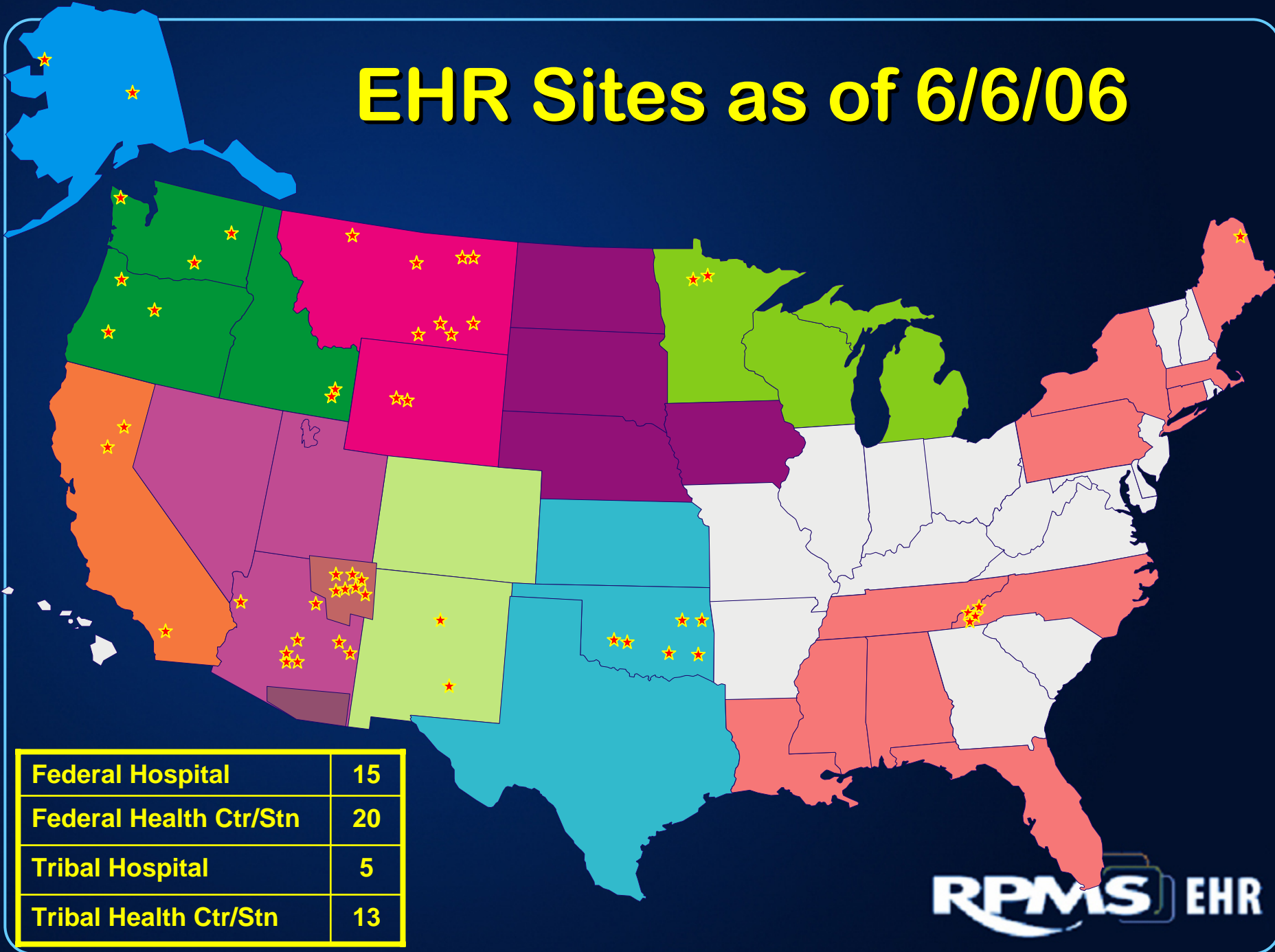


# EHR Milestones and Status

- RPMS EHR was certified January 2005
- 7 test sites participated in 2004
- Presently 53 facilities use EHR
- Goal for all Federal sites to be using EHR by end of 2008
- Tribal sites encouraged to use EHR as well



# EHR Sites as of 6/6/06





Patient Chart

Communication

RPMS

CIHA Intranet

UpToDate

Micromedex

E-Mail

CIHA-PACS

**Doe, Jane**  
 3      31-Dec-1957 (47)      F

**CHEROKEE DIABETES PRINCIPLE**      02  
 LAMER, CHRISTOPHER CLAYTON

Primary Care Team Unassigned

Postings

WA

Cover Sheet

Overview

Triage

Visit Vitals

Vitals

Screening

Health Promotion

Patient Education

Immunizations

Visit Codes

Problem List

Diagnosis/POV

Procedures

EM Calculator

Ordered Items

Lab Results

Medication List

Orders

Diagnosis/POV

Visit Codes

ICD Pick-Lists:

Display: ☒ Freq. Rank    ☐ Code    ☐ Description    Cols: 4

All Clinics, All F  
 Anticoagulation  
**Dermatology**  
 General  
 General  
 Laboratory  
 Medication

☐ 001: Acne                      ☐ 005: Tinea Versicolor                      ☐ 009: Rosacea                      ☐ 013: Dermatofibroma  
☐ 002: Atopic Dermatitis                      ☐ 006: Seborrhea                      ☐ 010: Impetigo                      ☐ 014: Psoriasis  
☐ 003: Seborrheic Keratosis                      ☐ 007: Benign Nevus                      ☐ 011: Actinic Keratosis                      ☐ 015: Onychomycosis  
☐ 004: Contact Dermatitis, Unspecified                      ☐ 008: Warts                      ☐ 012: Molluscum Contagiosum                      ☐ 016: Intertrigo

☐ Show All

**Historical Diagnosis**

Add to PL    Set as POV

Visit Date	POV Narrative	ICD	ICD Name	Facility
05/27/2005	Atrial Fibrillation	427.31	Atrial Fibrillation	Ciha Hospital
05/27/2005	Atrial Fibrillation	427.31	Atrial Fibrillation	Ciha Hospital
05/27/2005	Acute myocardial infarction, unspecified site, initial episode of care	410.91	Ami Nos,init Care	Ciha Hospital
05/27/2005	Family History of Diabetes Mellitus	V18.0	Fam Hx-diabetes Mellitus	Ciha Hospital
05/27/2005	Asthma, unspecified type, with status asthmaticus	493.91	Asthma W Status Asthmat	Ciha Hospital
	Diabetes Mellitus Type II		Diabetes Mellitus Type II	

Visit Diagnosis:

Add    Edit    Delete

Provider Narrative	ICD	ICD Name	Priority	Cause	Injury Date	Injury Cause	Injury Place	Modifier	Onset Date	Stage
Acute myocardial infarction, unspecified site, initial episode of care	410.91	AMI NOS,INIT CARE	Primary							



# How Can EHR Improve Care?

- Access to Information
  - Immediately available, no data entry delay
  - Service Unit wide, even satellite clinics
  - Legible
- Computerized Order Entry
  - **Much** less chance for error
  - Order checks for allergies and interactions
  - Complete, up to date medication lists
- Reminders, Notifications, and Alerts
  - Abnormal lab results
  - Screening and interventions that are due



# Impact of EHR - Metrics

- Provider Productivity
- Patient Care (GPRA/CRS)
- Billing & Collections

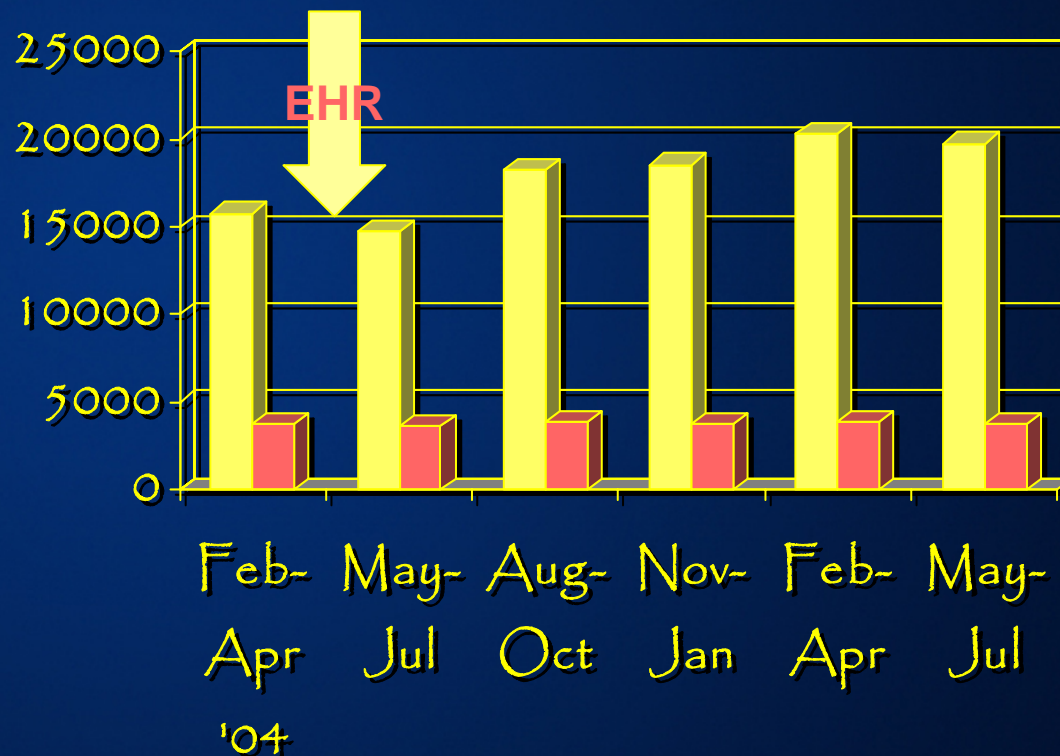


# Provider Productivity

- All sites see a transient decrease in provider productivity (pts/day) at first
- Typically takes 1-3 months to recover to pre-EHR levels
- Mitigate by staggering implementation, either by provider or by function, or both
- Efficiencies in other areas (phone calls, chart reviews) can improve productivity



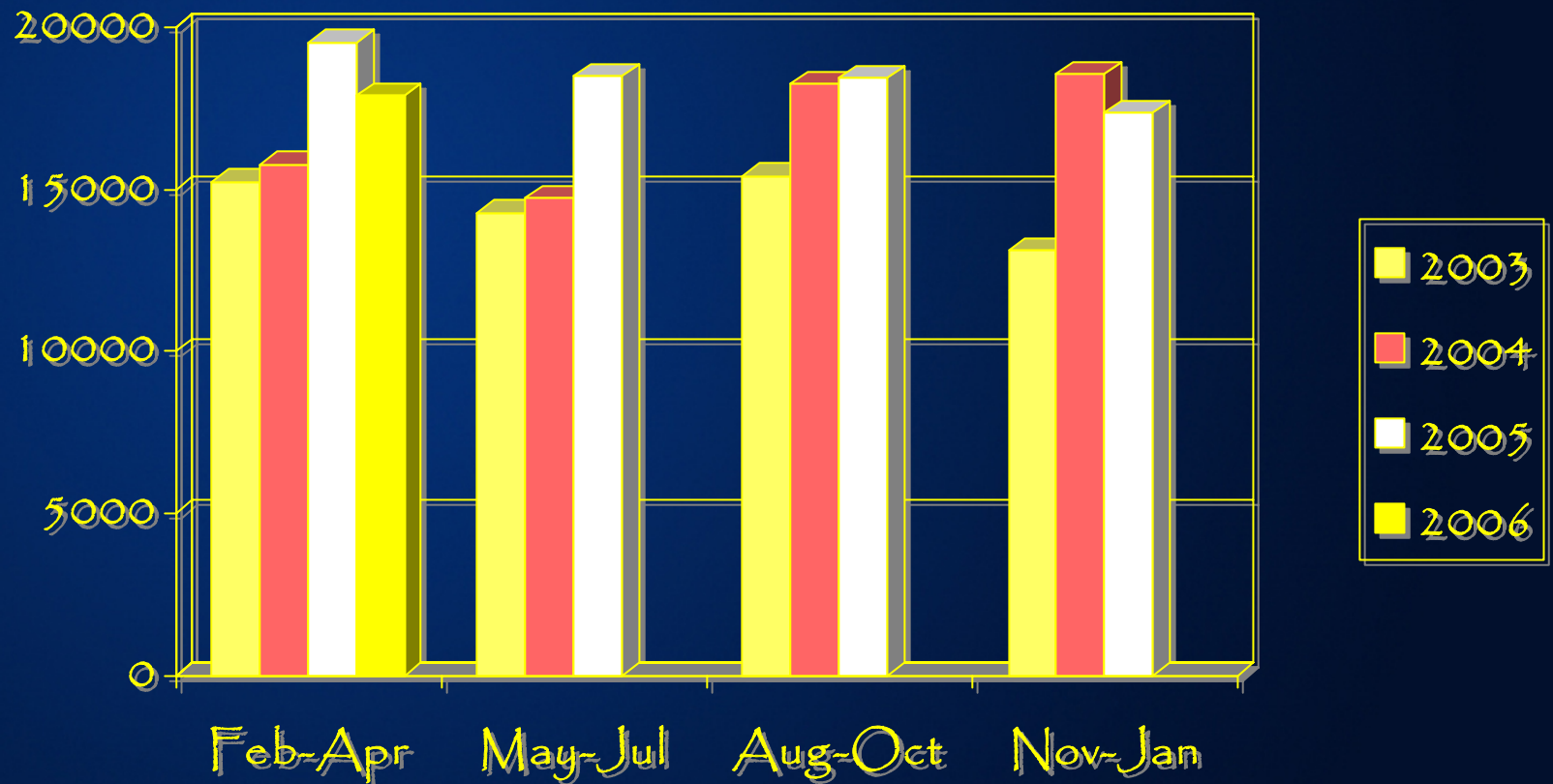
# Clinic Visits (Site A)



■ Visits ■ Patients



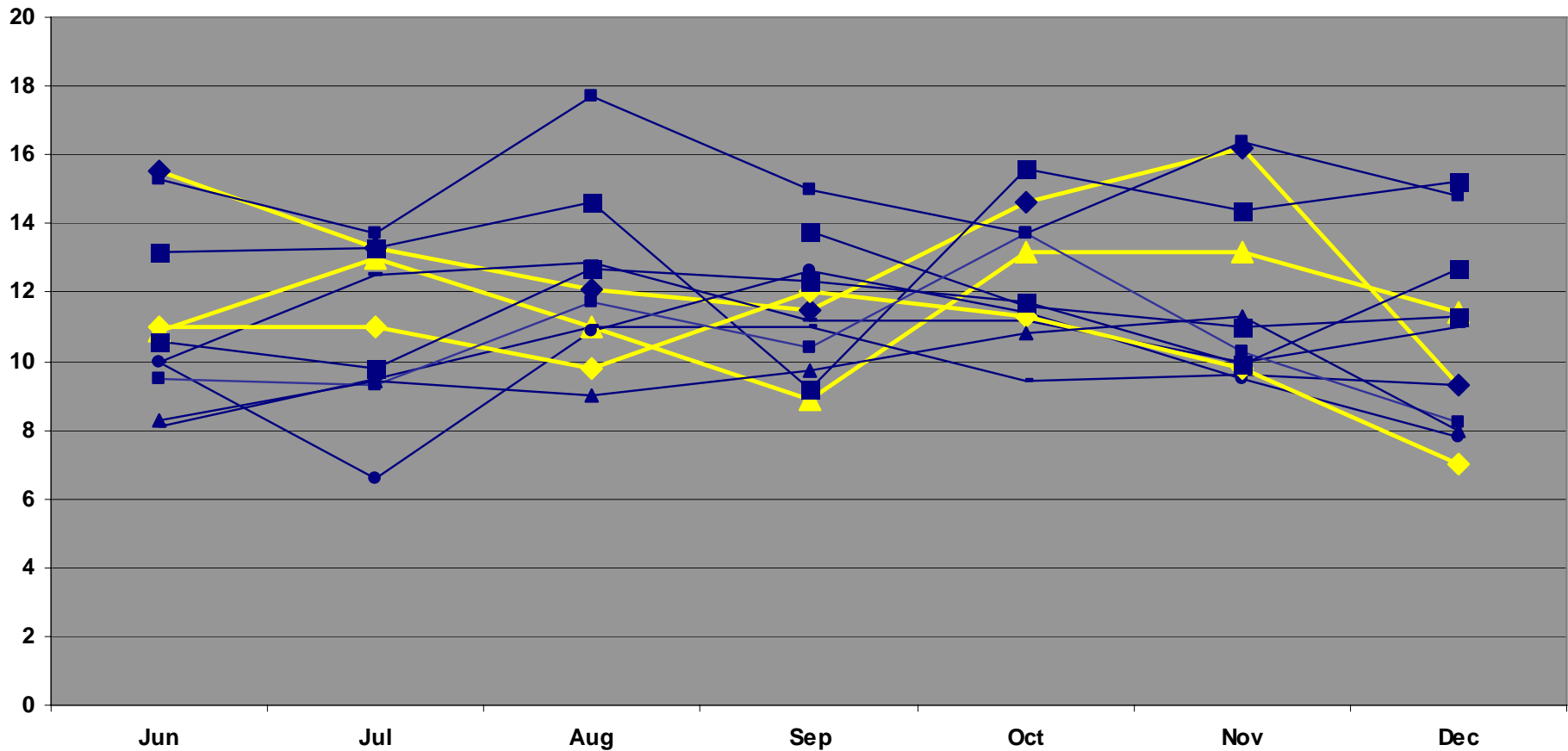
# Quarterly Visit Comparison (Site A)





# Site C Productivity

**Average General Clinic Patients Per Day Per Provider : June-December 2004**





# Site E Comments

- Urgent care clinic (2000-2500 visits/mo)
  - 1<sup>st</sup> provider 3/05
  - Added provider every 3-4 weeks (7 total)
  - Productivity drop 5-15 days only
  - Chart pull rate now 4% (patients coming from ER)
  - 2 chart runner positions dropped (\$60K)



**Doe, Jane** **PHARMACY** **21-Dec-2004 09:**  
 2 31-Dec-1957-61 LAMER, CHRISTOPHER CLAYTON

**Contraceptive**

**ORAL CONTRACEPTIVES**

- Brevicon 28
- Levlen
- Loestrin FE 1/20
- Loestrin FE 1.5/30
- Norinyl 1/35
- Ortho Novum 7/7/7
- TriLevlen

**Medication Order**

ETHINYL ESTRADIOL/NORETH

[Display Restrictions/Guidelin](#)

Dosage Complex

1 TABLET LOESTRIN 1/20 FE (2

1 TABLET NORINYL 1/35 (28)

1 TABLET ORTHO-NOVUM 1/35

1 TABLET BREVICON-28

1 TABLET ORTHO NOVUM 7/7/7

1 TABLET LOESTRIN 1/20 FE (2

1 TABLET LOESTRIN 1/20 (21)

2 TABLETS LOESTRIN 1/20 (21)

1 TABLET NORETHINYL ESTRO

Comments:

Days Supply Quantity

28 28

LOESTRIN 1/20 FE (28)

TAKE ONE TABLET BY MOUTH

Quantity: 28 Refills: 11

LINEZ

TAKE ONE TABLET BY MOUTH DAILY

Quantity: 90 Refills: 0

\*FERRIC NA GLUCONATE INJ,SOLN

12.5MG/ML

INJECT 125MG INTRAVENOUSLY

WEEKLY

Quantity: 1 Refills: 4

BISMUTH SUBSALICYLATE

**Restrictions/Guidelines**

**Oral Contraceptive Comparison Chart**

Product	Estrogen	Progestin	Androgen
<b>Monophasic</b>			
Ortho-Cept	++	++++	+
*Levlen	++	++	++
Nordette	++	++	++
Nordette	++	++	++
Lo Ovral	++	++	++
*Demulen 1/35	+	++++	++
*Demulen 1/50	++	++++	++
*Loestrin 1/20	+	+++	+++
*Loestrin 1.5/30	+	++++	+++
Brevicon	++++	+	+
Modicon	++++	+	+
Ovcon 35	++++	+	+
*Norinyl 1/35	+++	+++	++
*Norinyl 1/50	+++	+++	++
Ortho Novum 1/35	+++	+++	++
Ortho-Cyclen	+++	+	+
Ortho Cept	++	++++	+
Desogen	++	++++	+
Ovcon-50	++++	+++	++
*Ovral	++++	++++	+++
Ortho Novum 1/50	+++	+++	++
<b>Biphasic</b>			
Jenest-28	+++	++	++
Ortho Novum 10/11	++++	++	++
<b>Triphasic</b>			
*Ortho Novum 7/7/7	++++	++	++
Ortho Tri Cyclen	+++	+	++
Tri-Norinyl	++++	++	++
*Tri-Levlen	++	+	++
Triphasil	++	+	++
<b>Progestin only</b>			
*Micronor	None	+	+
Ovrette	None	+	+

Estrogen Excess

dys/hypermenhorrea, bloating, edema, headache, migraine, weight gain, irritability, leg cramps, nasuea/vomitting, visual changes

Estrogen Deficiency

absence of withdrawal bleeding, early/midcycle bleeding, continuous bleeding

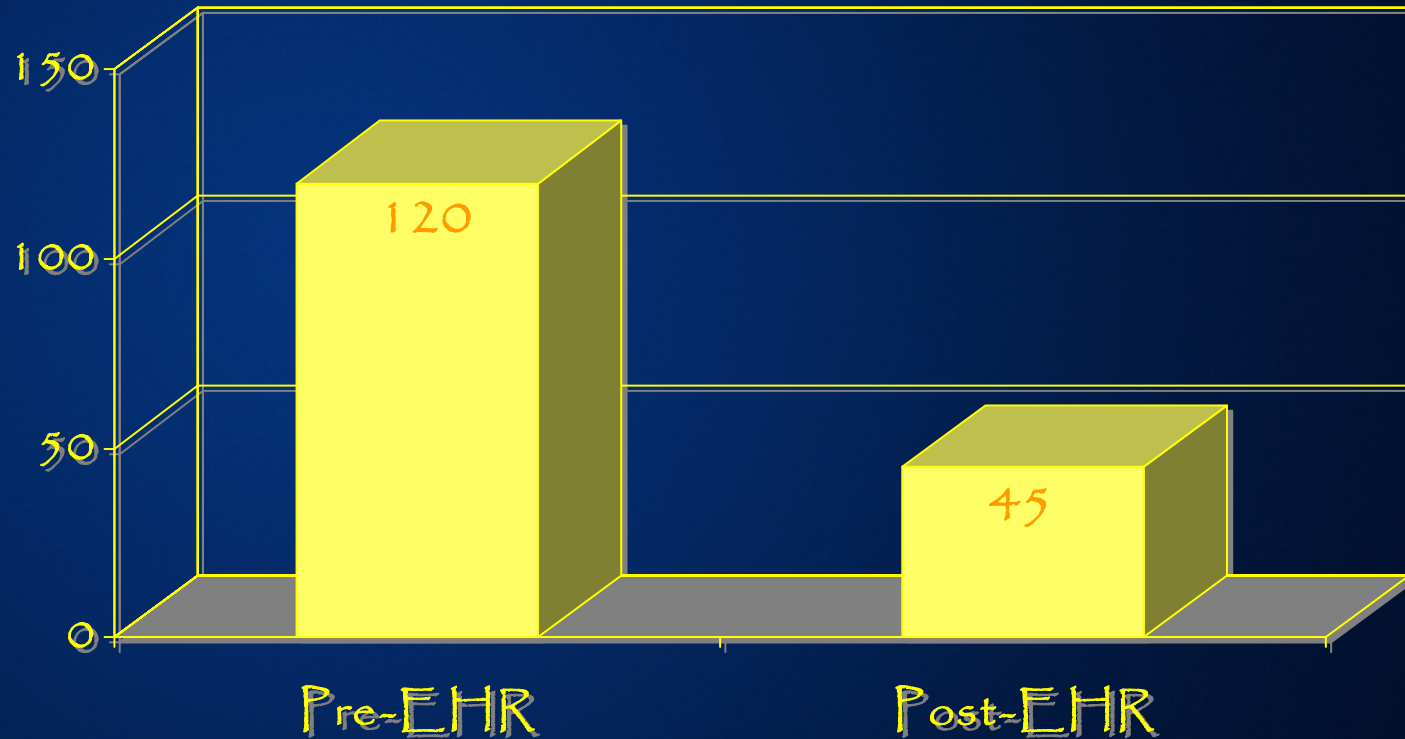


# Patient Care Metrics

- Principal reason for EHR – improve patient care
- How do we know we have done that?
- Sites should be identifying important metrics and tracking them
- Ready-made patient care metrics: CRS
- EHR can provide the tools for quality improvement but an active QI program is a must



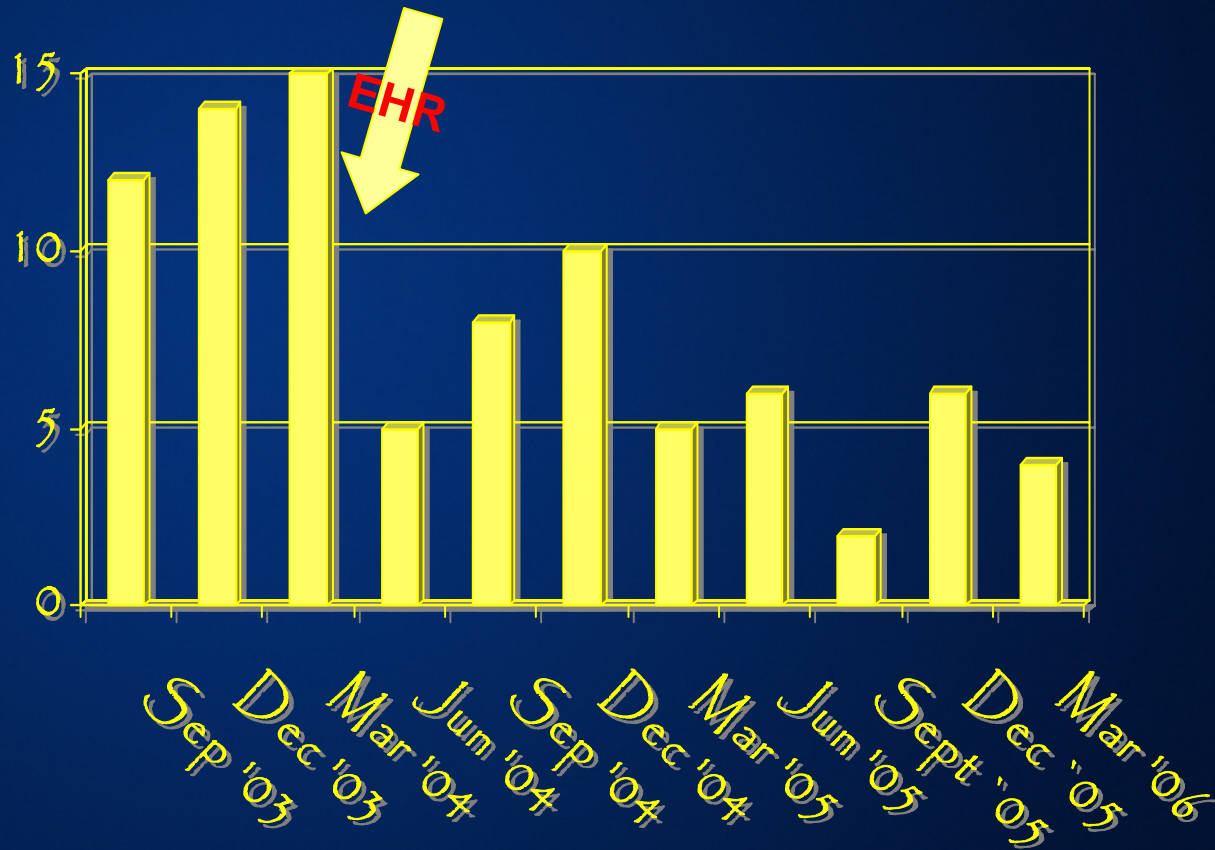
# Pharmacy Waiting (Site D)



■ Pharmacy Waiting Time (minutes)



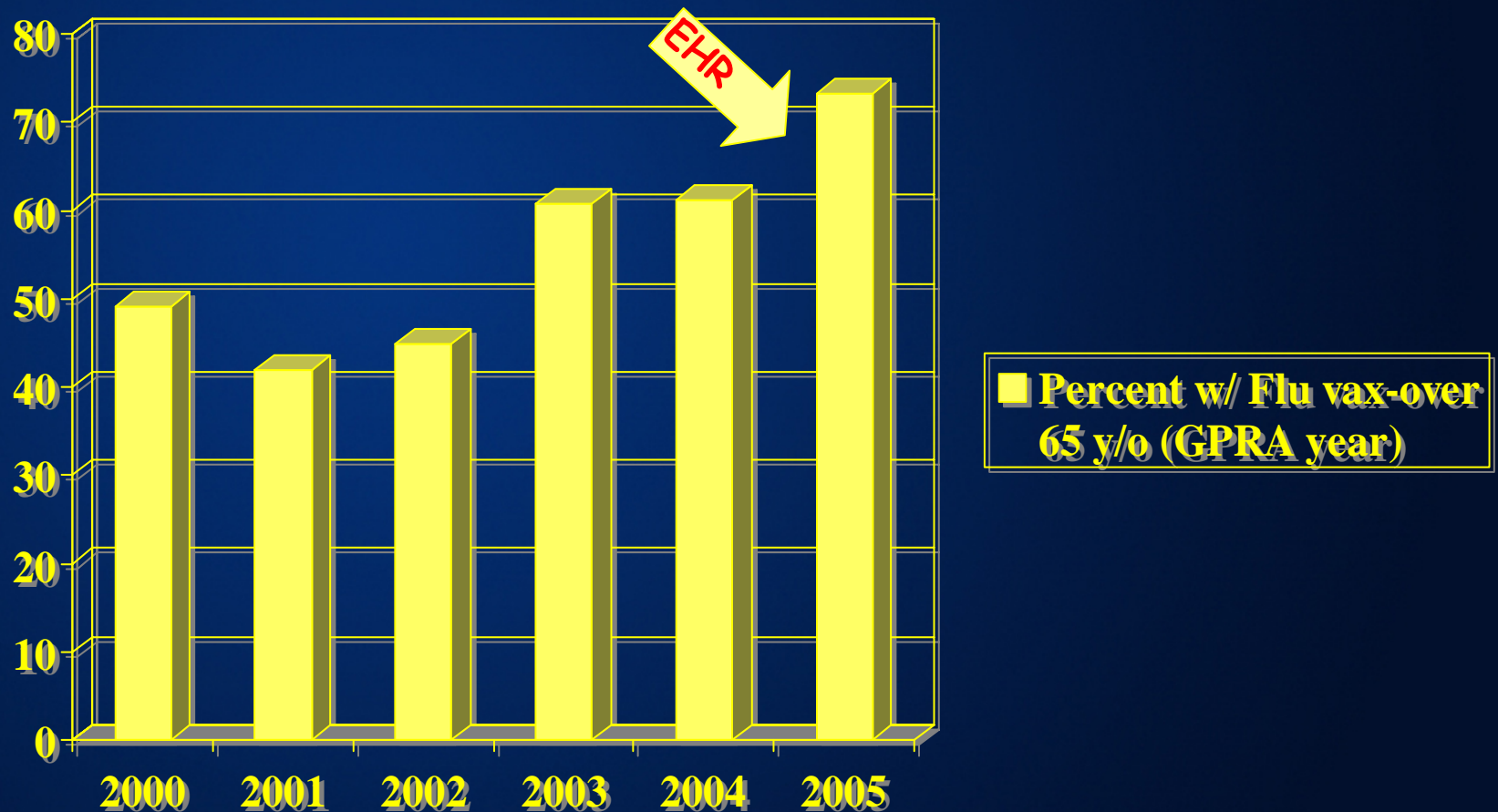
# Medication Errors (Site A)



■ End of Qtr Med Errors

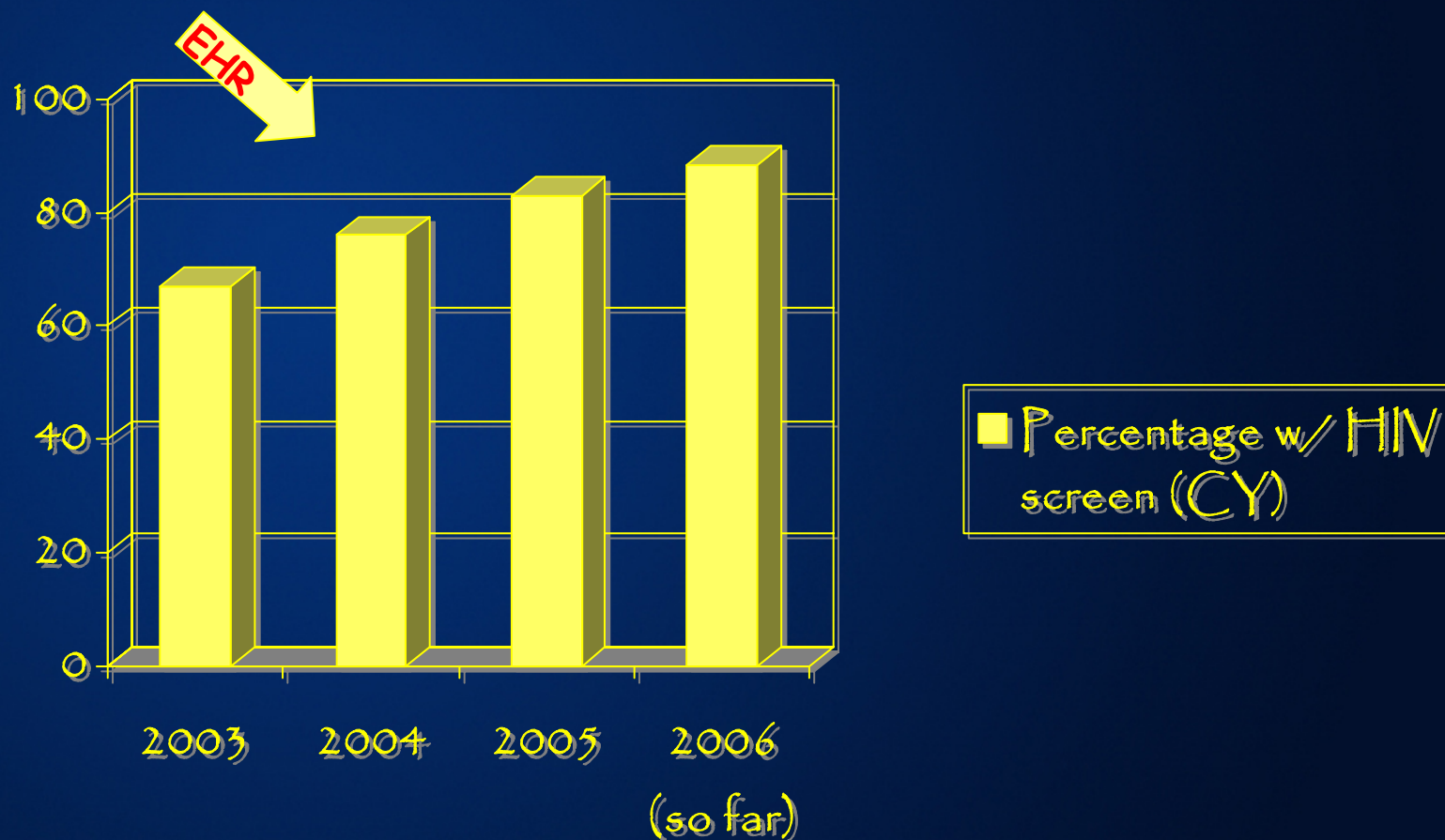


# GPRA Indicator - Flu Vaccine 65+ (Site A)



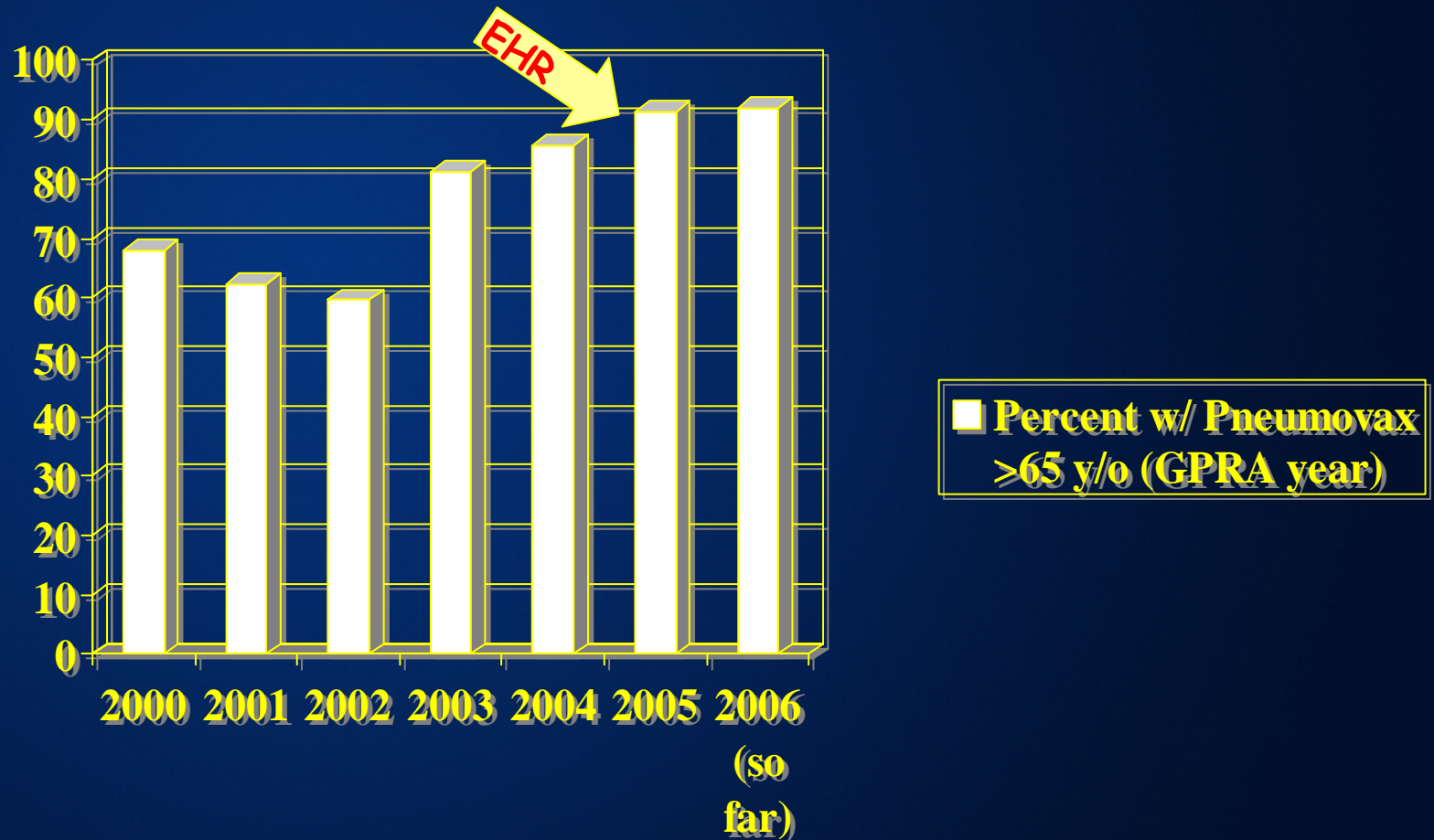


# GPRA Indicator – Prenatal HIV (Site A)



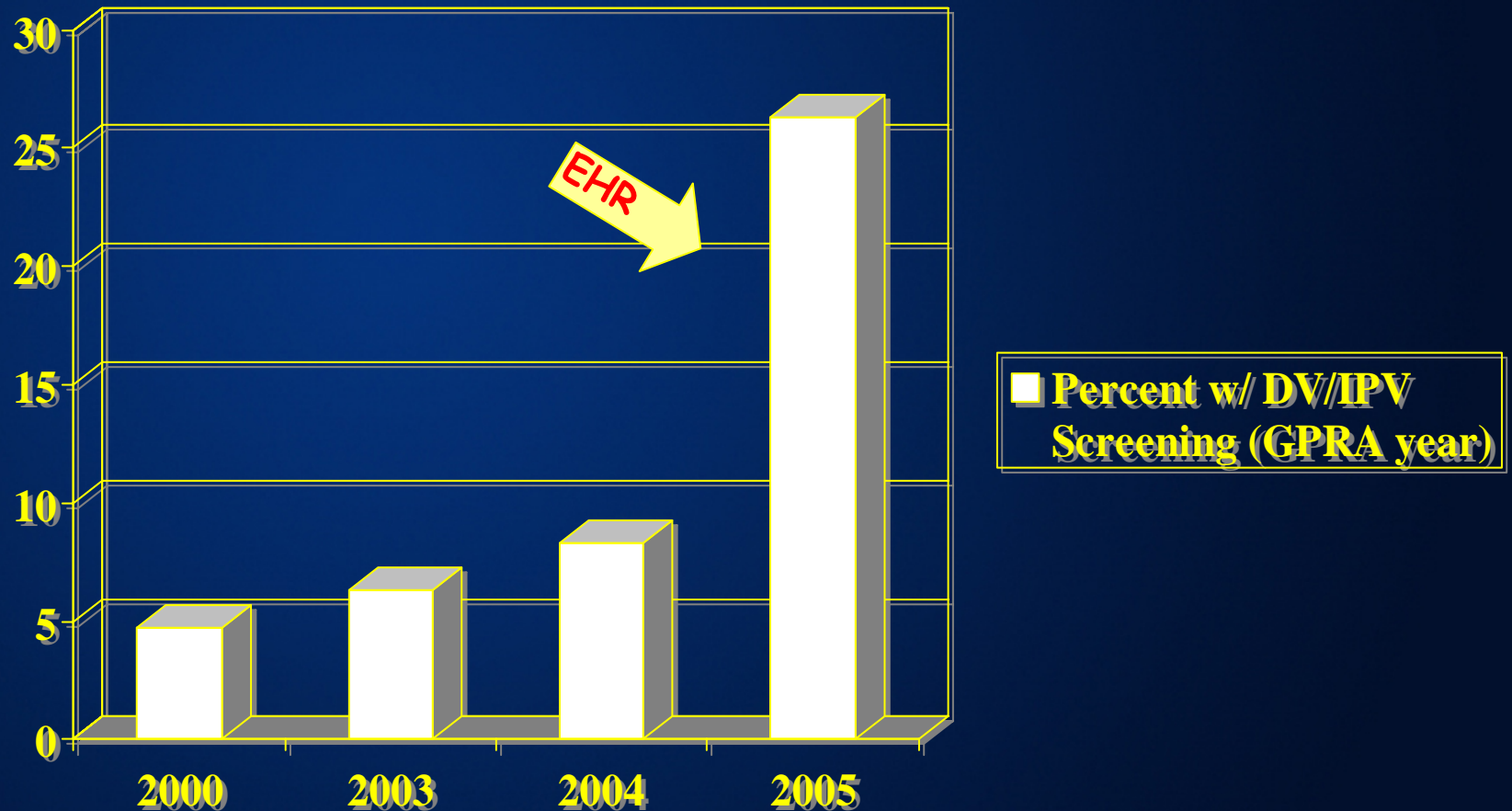


# GPRA Indicator – Pneumovax over 65 y/o (Site A)



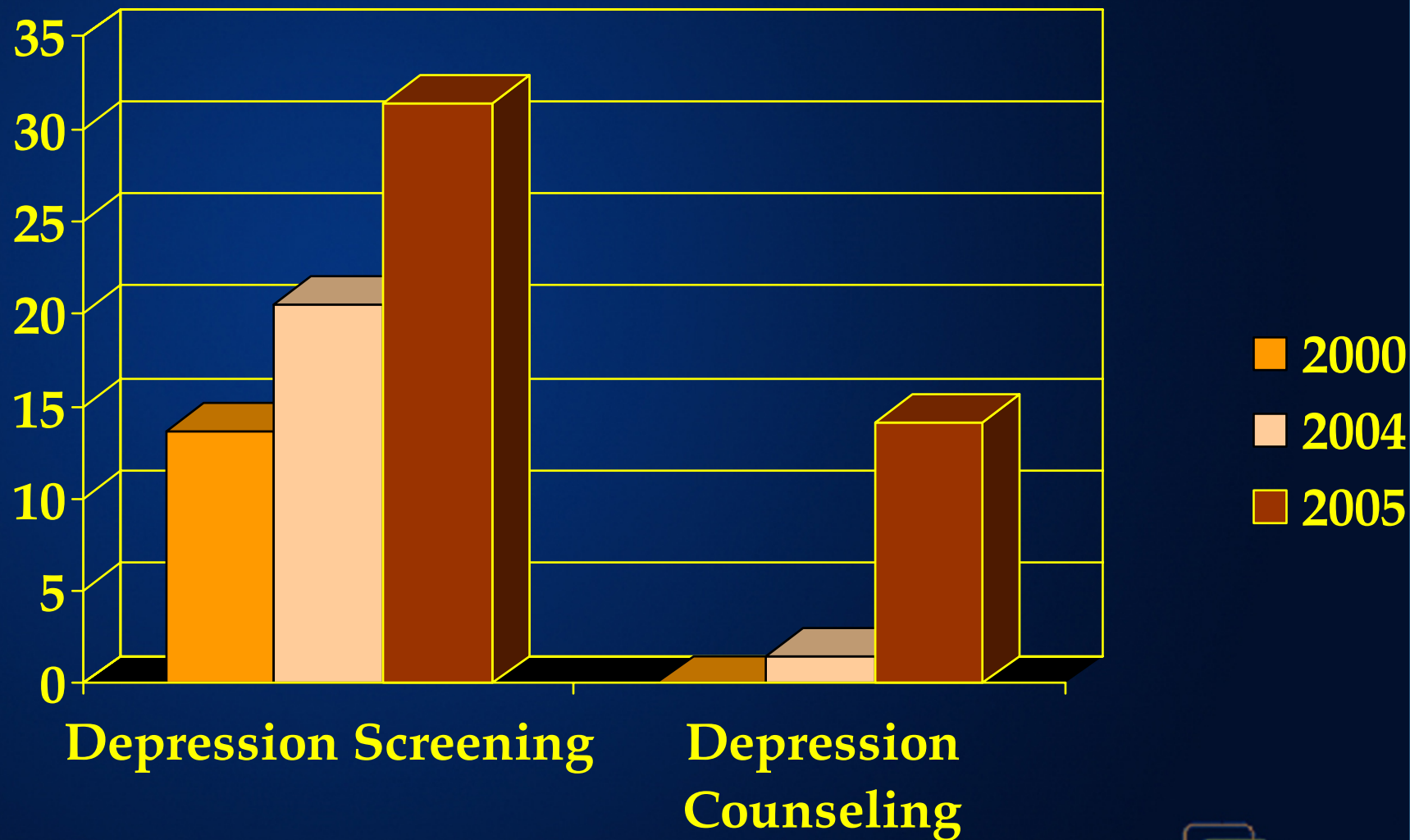


# GPRA Indicator – DV Screen Age 15-40 (Site A)



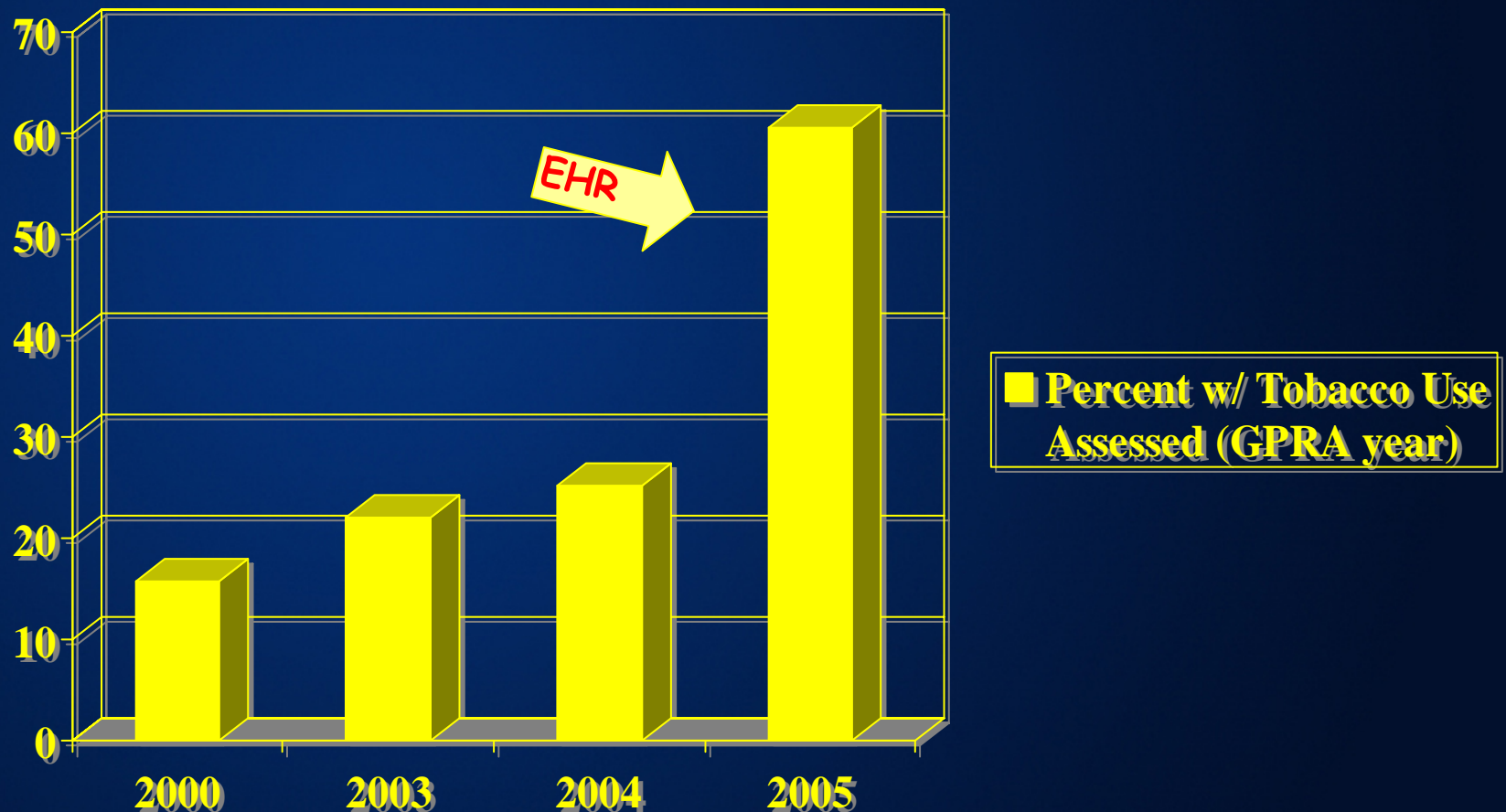


# Depression Screening (Site A)



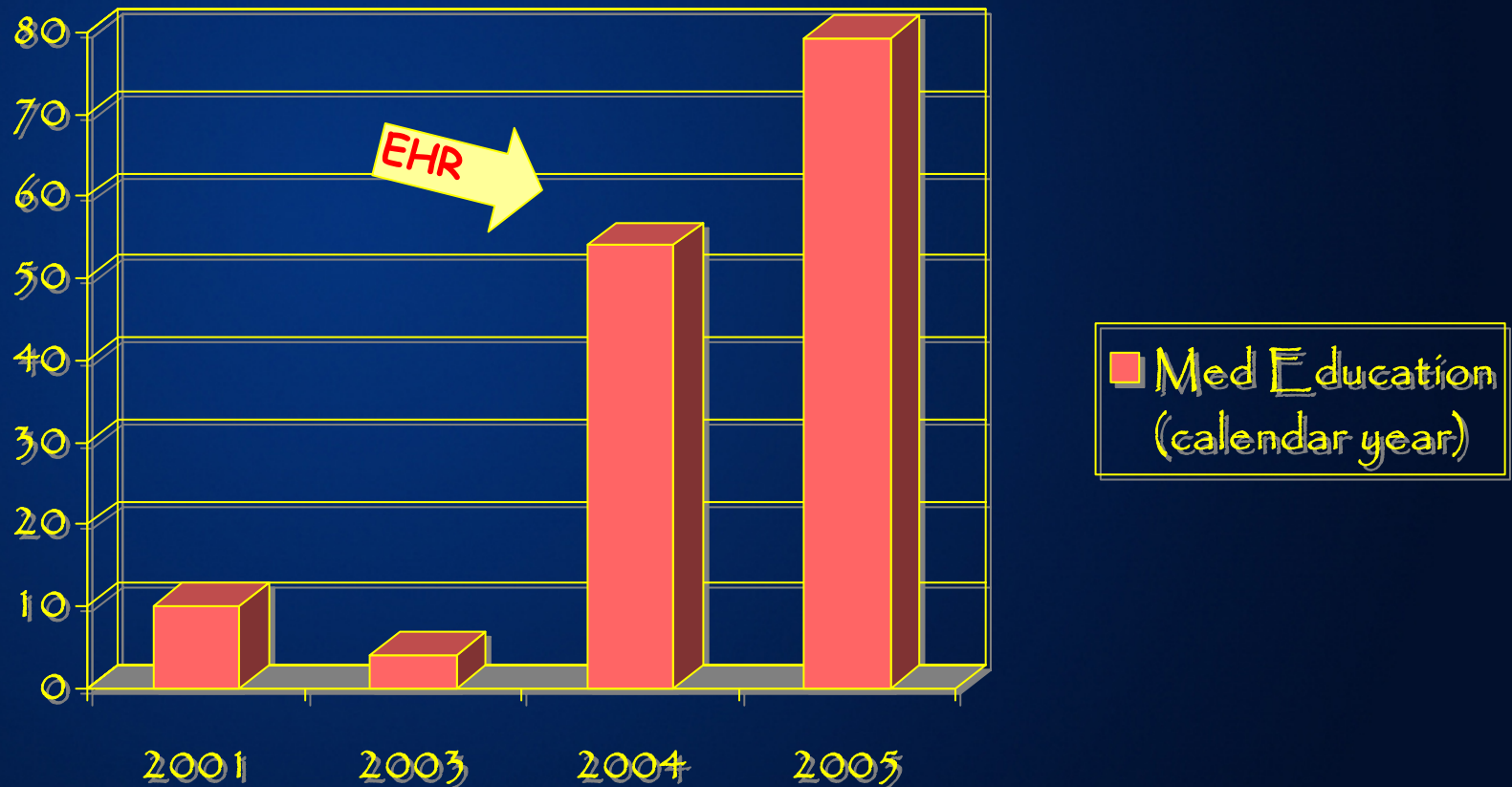


# GPRA Indicator – Tobacco Assessment (Site A)



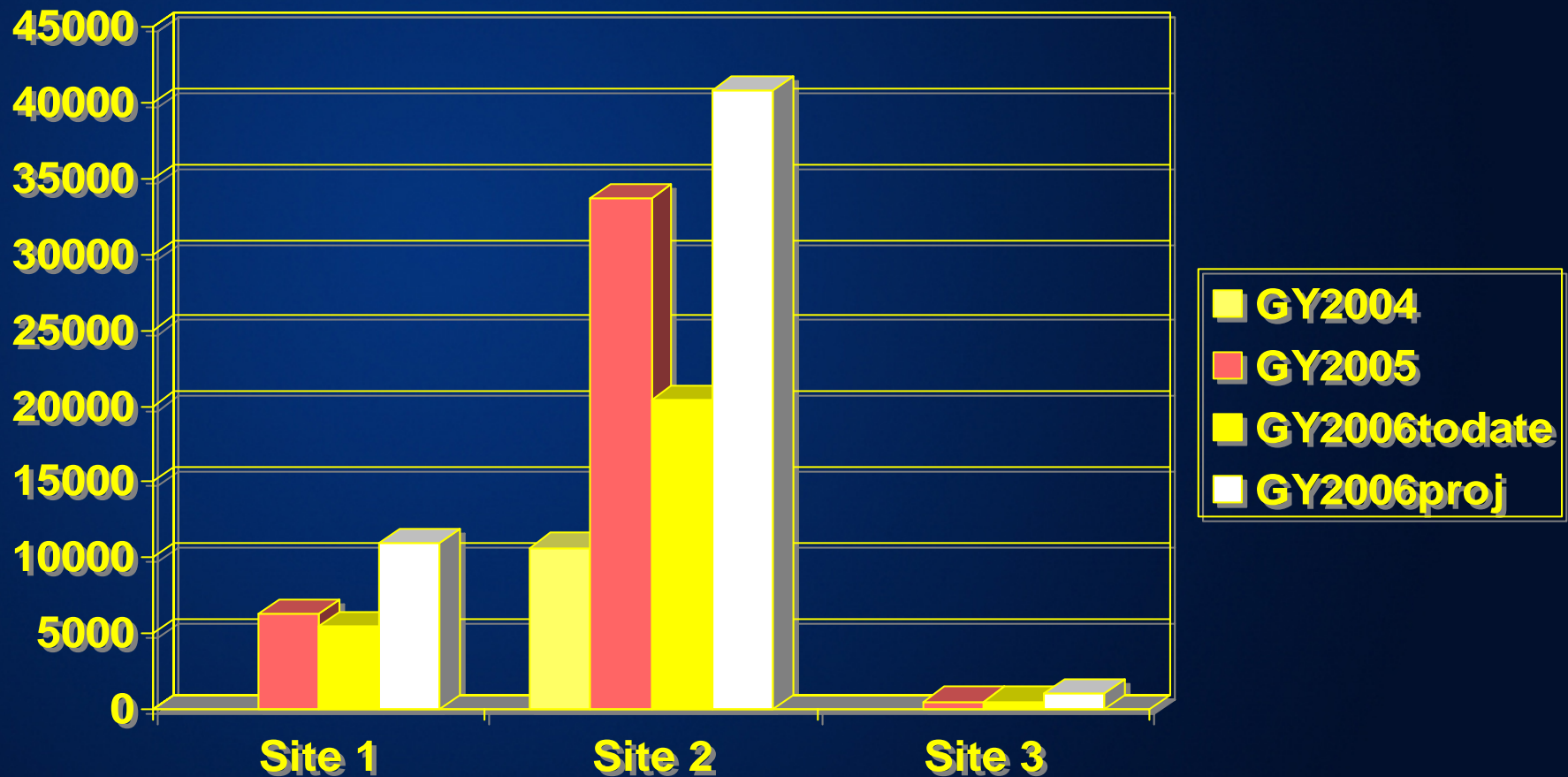


# GPRA Indicator – Medication Education (Site A)



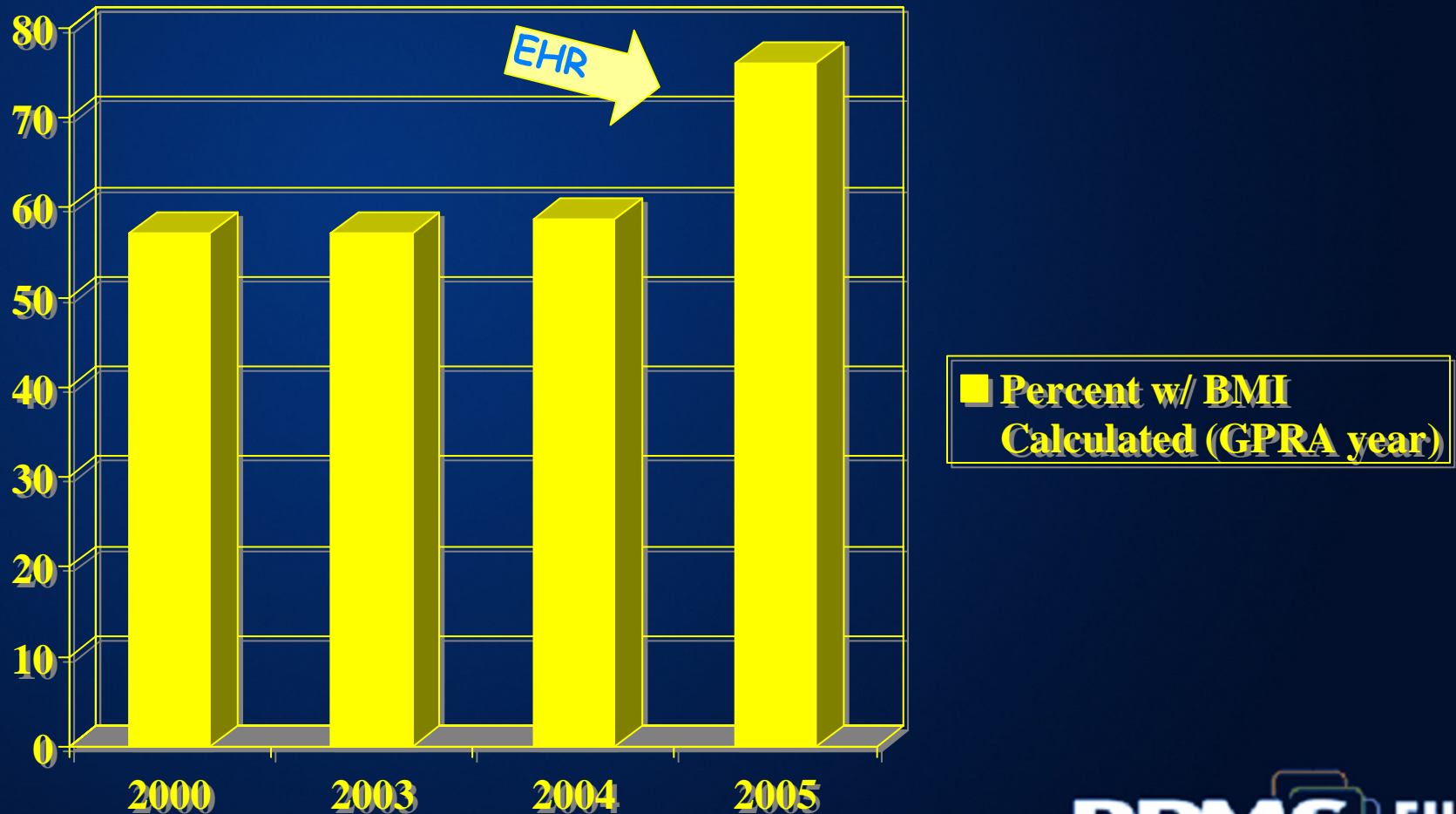


# Patient Education – 3 EHR Sites



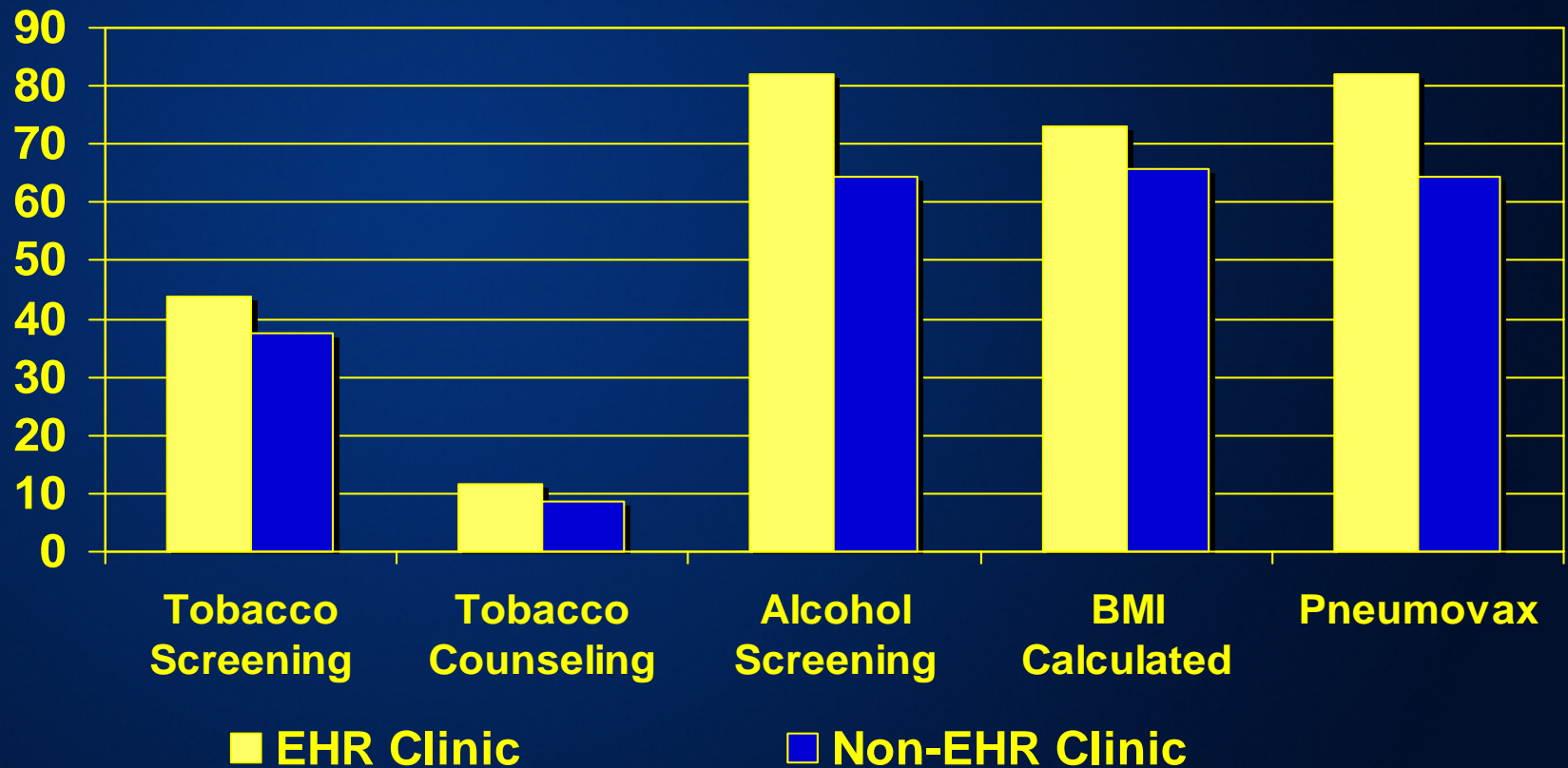


# GPRA Indicator – BMI 2-74 y/o (Site A)





# GPRA Indicators – 1<sup>st</sup> Qtr '05 (Site C)





1	20-Mar-1947 (57)	F
---	------------------	---

LAMER,CHRISTOPHER CLAYTON

CA



Delete

 Add Patient Education Event

ASM-DISEASE P

(Asthma)

q: ☒ Individual

: GOOD

5 (min)

--	--

LAMER, CHRIST

☐ Goal Set    ☐ Goal Met☐ Goal Set    ☐ Goal Met

OUTCOME:


The patient will understand the etiology and pathophysiology of a

STANDARD:

1. Review the anatomy and physiology of the respiratory system.
2. Discuss common triggers of asthma attacks (smoke, animal dander, air, exercise, etc.)
3. Explain that asthma is a chronic inflammatory disease and must on a long-term ongoing basis.
4. Explain the various aspects of an asthma attack, including airway

Font Size:

 Print...

 Close

Standard

Cherokee Indian Hosp

43 yrs

Negative



Add

	STC#
--	------



G: 1 P: 1 LC: 1 SA: 0 TA: 0 LMP: 12/15/2002

Family Planning Method: Barrier Methods Date FP Began: 7/17/1991

☒ Pregnant    Est. Delivery: 7/4/2001    Determined By: Sonogram

HEP B ADLT	past due
------------	----------

**Contraindications:**

[Print Record](#)

Due Letter

Delete

Vaccine	Visit Date	Age@Visit	Location	Reaction	Volume	Inj. Site	Lc
DTP	08/02/1987	40 yrs	Undesig Locs				
DTP	12/04/1987	40 yrs	Ciha Hospital	Rash or Itching			
DT-PEDS	02/12/1988	40 yrs	Seattle Ind Hlth Brd				
DT-PEDS	03/04/1988	40 yrs	Ciha Hospital	Rash or Itching			


















# EHR Creates the Potential to Improve Collections:

- More complete documentation with templates
- Provider notifications for forgotten POVs or codes
- Superbills, ICD/CPT Pick Lists – easier to find correct codes
- Coding Tools and Training with EHR



# Automatic Notifications

## Notifications for All Patients

		Patient	Notification
		PATIENT,DEMO	Visit is missing a purpose of visit.
		PATIENT,DEMO	Visit is missing an E&M code.
		PATIENT,DEMO	UNSIGNED PC ACUTE CARE VISIT
		PATIENT,DEMO	Visit is missing a purpose of visit.
		PATIENT,DEMO	Visit is missing an E&M code.
		PATIENT,DEMO	UNSIGNED Adverse React/Allergy av
		PATIENT,DEMO	Order requires electronic signature.
		DEMO,TEEN	Visit is missing a purpose of visit.
		DEMO,TEEN	Visit is missing an E&M code.
		DEMO,TEEN	Visit is missing a purpose of visit.
		DEMO,TEEN	Visit is missing an E&M code.
		DEMO,TODDLER	Visit is missing a purpose of visit.
		DEMO,TODDLER	Visit is missing an E&M code.



# Superbill link to Billing

**Super-Bills:** Display: ☒ Freq. ☒ Rank ☒ Code ☐ Description Cols: 4

☐ Dressing-wound Care  
☐ Immunization Superbill  
☒ **Injections Superbill**  
☐ Nurse Superbill  
☐ Ob-Gyn Superbill  
☐ Optometry  
☐ Ortho

☒ 001: 90788 - Admin Of Antibiotic, Im  
☐ 002: 95117 - Allergy Injection (2 Or Mor  
☐ 003: 95115 - Allergy Injection (single)  
☒ 004: J0295 - Ampicillin (per 1.5 Gm)  
☐ 005: J2275 - Astramorph Per 10 Mg  
☐ 006: J1200 - Benadryl (up To 50 Mg)  
☐ 007: J0704 - Betamethasone (per 4 Mg)  
☐ 008: J0696 - Rocephin (per 250 Mg)  
☐ 009: J0780 - Compazine (up To 10 Mg)  
☐ 010: J0540 - Cr Bicillin (up To 1,200,000

☐ 014: J1028 - Depo-medrol (20 Mg)  
☐ 015: J1030 - Depo-medrol (40 Mg)  
☐ 016: J1055 - Depo-provera (150 Mg)  
☐ 017: J1040 - Depo Medrol (80 Mg)  
☐ 018: J3490 - Drug Injection (unclassified  
☐ 019: J0170 - Epinephrine Up To 1ml  
☐ 020: J1364 - Erythromycin Lactobionate  
☐ 021: J1580 - Gentamicin (up To 80 Mg)  
☐ 022: J1642 - Heparin Lock Flush (per 1

☐ 027: J1950 - Leuprolide Injection (per 3.75 Mg)  
☐ 028: J2210 - Methergine (up To 0.2 Mg)  
☐ 029: J9250 - Methotrexate (5 Mg)  
☐ 030: J2300 - Nubain (per 10 Mg)  
☐ 031: J2550 - Phenergan (up To 50 Mg)  
☐ 032: J2590 - Pitocin (up To 10 Units)  
☐ 033: J2765 - Reglan (up To 10 Mg)  
☐ 034: J2790 - Rhogam 300 Mcg  
☐ 035: J2920 - Solu-medrol (up To 40 Mg)  
☐ 036: C9003 - Synagis

**Evaluation and Management:** ☐ New Patient ☒ Established

Type of Service: ☐ Level of Service: ☐

History and Exam	Complexity	Approx. Time	CP
<input type="checkbox"/> Brief	Nurse Visit	5 min	992
<input checked="" type="checkbox"/> <b>Problem Focused</b>	<b>Straitforward</b>	<b>10 min</b>	<b>992</b>
<input type="checkbox"/> Expanded	Low	15 min	992
<input type="checkbox"/> Detailed	Moderate	25 min	992
<input type="checkbox"/> Comprehensive	High	40 min	992

**Visit Services:**

CPT	Narrative	Qty	Diagnosis	Prim	Modifier 1	Modifier 2	Provider
J0295	INJ AMPCLLN SODIM/SULBACTAM-1.5 G	1		Y			JOHNSON,CA
90788	INJECTION OF ANTIBIOTIC	1		N			JOHNSON,CA
99212	OFFICE/OUTPATIENT VISIT, EST	1					JOHNSON,CA

**RPMS Billing Package**



# Coding Tools in EHR

- Links to coding sites, reference guides, E&M  
Coder

IHS-EHR (LIVE)

User Patient Coding Tools Help

Patient Chart RPMS Coding Asst Communication

Back Forward Stop Refresh Home Print

## Coding Assistance

ICD-9 Codes for Family Practice 2003-2004  
(from Family Practice Management)

- Short List (600 codes)
- Long List (1500 codes)
- Search ICD-9 Codes

### Web links

- ICD-9 Flash Code
- E&M Code Helper
- CMS Prioritized Coding List
- Official ICD Coding Guidelines

[Audit Sheets](#)

Home  
Calendars  
Committees  
Departments  
Facility Statistics  
Forms  
Formulary  
MSDS  
Phone Directories  
Policies & Manuals  
Training  
Search Engines  
Links

Patient Chart RPMS Coding Asst Communication

Back Forward Stop Refresh Home Print

## E&M CODER<sup>95</sup>

Patient: ☒ new ☐ established

Code By Time: ☐ Yes ☒ No

B/F productions

History	Physical Examination	Medical Complexity			
HPI:	<input type="radio"/> none	99211	<input type="radio"/> Straight forward	99212	
<input type="radio"/> none	99211	<input type="radio"/> 1 body area or system	99212	<input type="radio"/> Low	99213
<input type="radio"/> 1-3 elements	99213	<input type="radio"/> 2-4 body areas or systems	99213	<input type="radio"/> Moderate	99214
<input type="radio"/> 3 or more chronic dz's	99215	<input type="radio"/> 5-7 body areas or systems	99214	<input type="radio"/> High	99215
<input type="radio"/> 4 or more elements	99215	<input type="radio"/> 8 or more systems	99215	Moderate	

Help! 99211  
99212  
99213  
99214  
99215

feedback

Calculate

E&M Score= 99214

PMH: ☐ YES ☐ NO

FH: ☐ YES ☐ NO

SH: ☐ YES ☐ NO

ROS:

☐ none 99212

☐ Problem Pertinent ROS 99213

☐ Extended ROS 99214

☒ Complete ROS 99215

New Patient codes can only be used if any physician within the same specialty in the clinic has not seen the patient within three (3) years or not seen at the facility with a three (3) year period.

If a physician has not seen the patient in a particular specialty within a three-year period, this would constitute a new patient visit. If an initial visit and procedure (i.e., minor surgery) are performed on the same day of service then both may be coded separately.

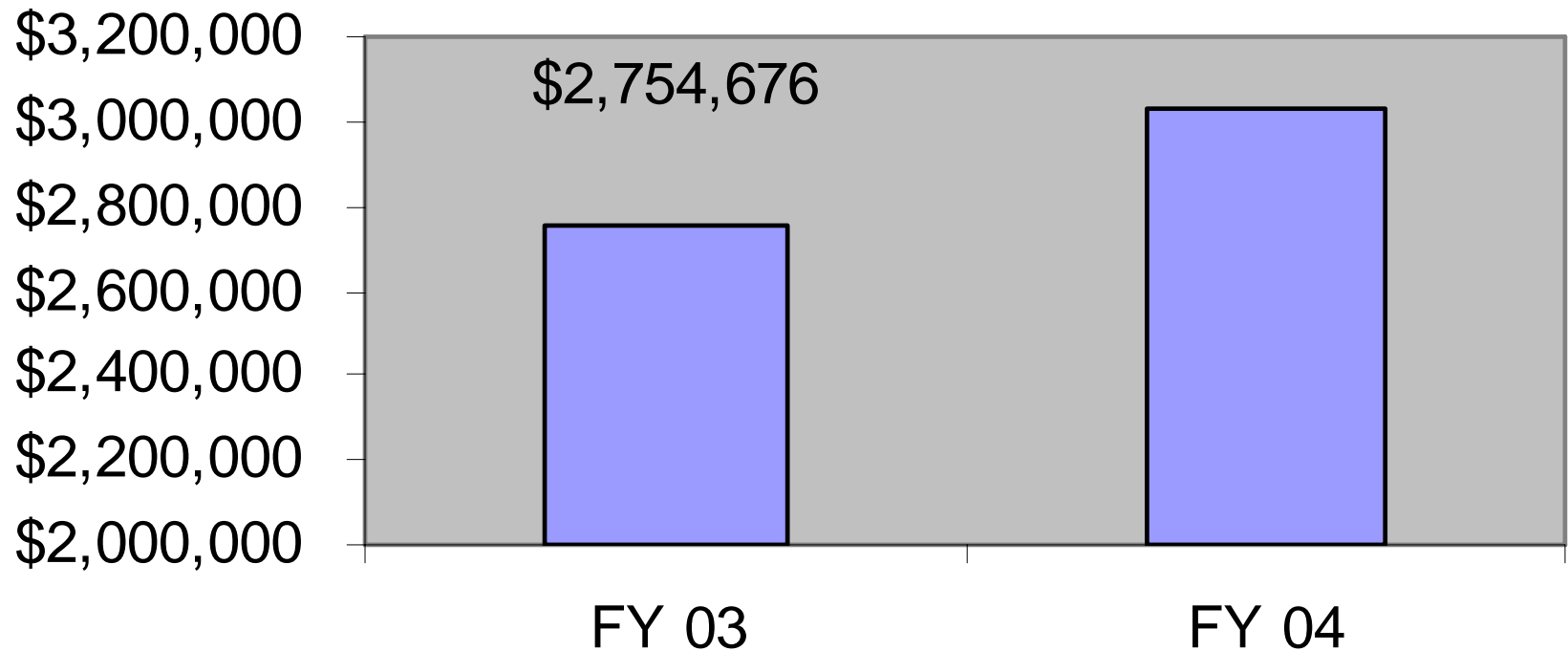
An Established Patient is one who has received any professional services from the physician or another physician of the same specialty who belongs to the same group practice, within the past three (3) years.



# Medicare/Medicaid/PI Collections

Revenue Site A

\$3,028,828

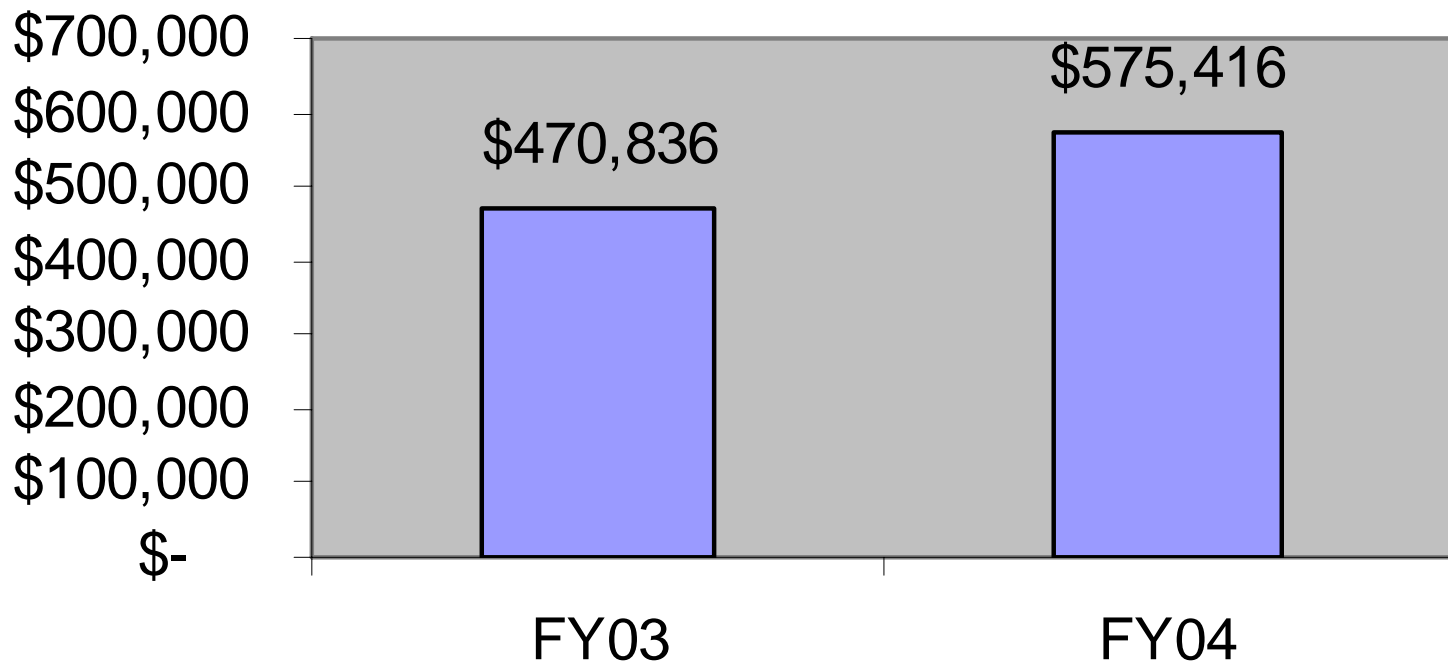


10 % increase in total collections



# Itemized Billing Collections Partial EHR Year

PI and Medicare

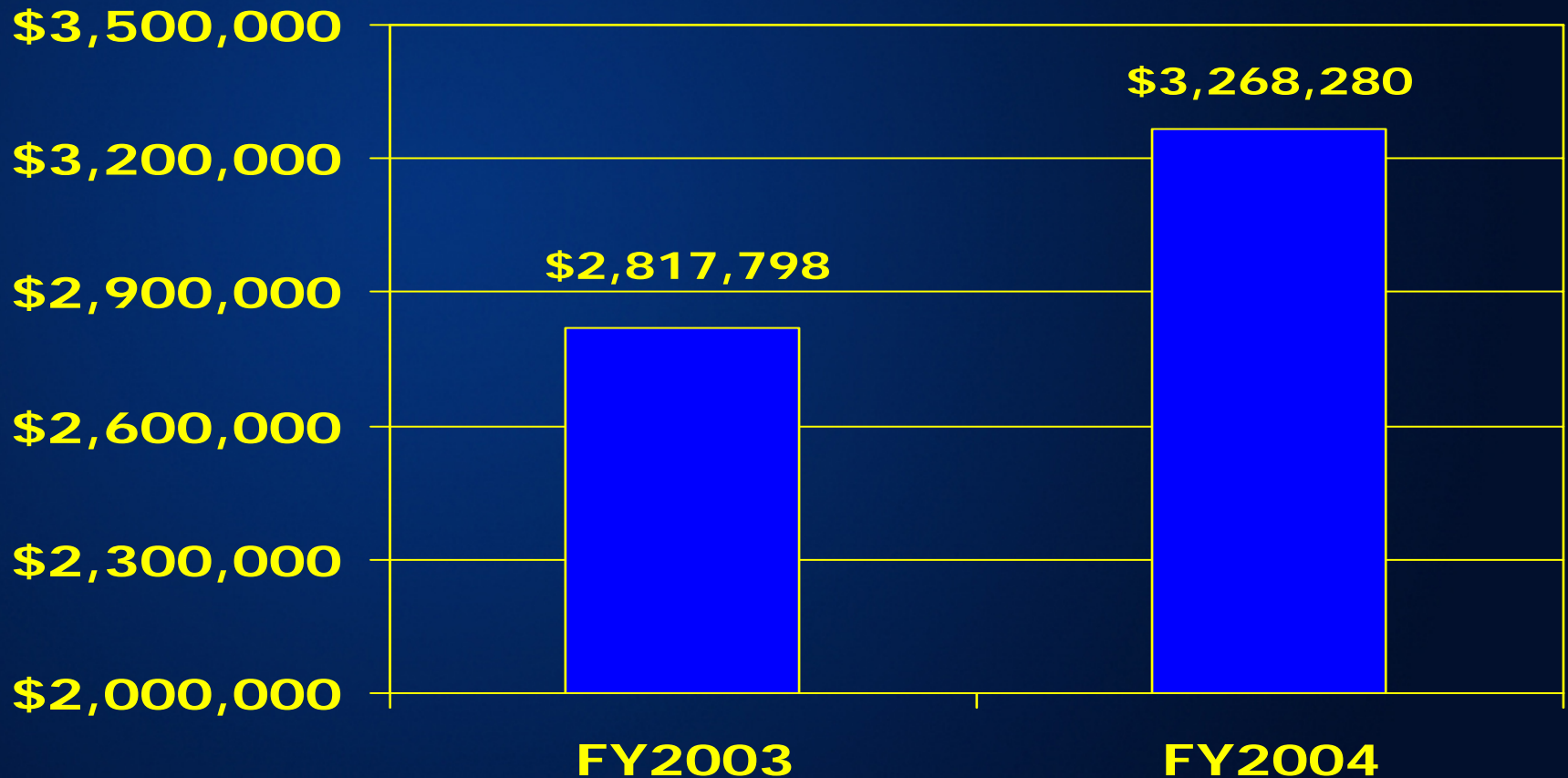


22% increase in itemized collections





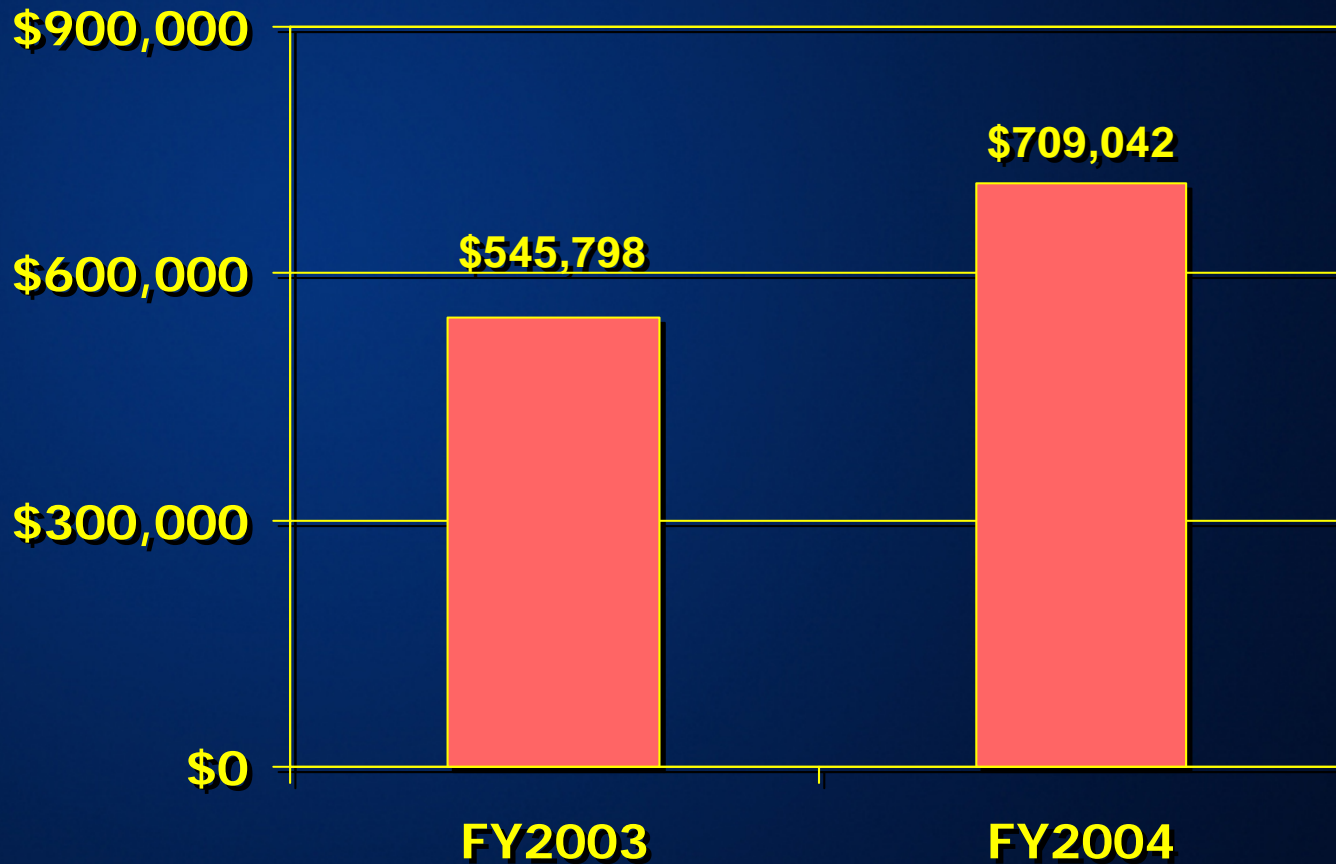
# Medicaid Collections (Site B)



16% Increase from FY03 to FY04



# PI collections (Site B)



29.9 % Increase from FY03 to FY04



# Podiatry Billing (Site D)



■ 1st Qtr 2004 (1081 pts) ■ 1st Qtr 2005 (1107 pts)



# Optometry Billing (Site D)



■ 1st Qtr 2004 (2080 pts)

■ 1st Qtr 2005 (1824 pts)



# Costs of EHR

- Server upgrade with redundancy
  - ~\$20,000 - \$120,000
- LAN upgrades if necessary
  - Cost variable depending on size of site
- User hardware/workstations
  - ~\$600 - \$2000 per user
  - Plus ergonomics
- Clinical Application Coordinator, additional IT staff
  - ~\$80,000 each, annually
- Training costs
  - ~\$5000 - \$15,000



# Other Cost-Related Factors

- OIT covers installation costs
- No licensing fees or support costs
- Setup and some training are brought onsite at no cost to facility (typically 3 visits)
  - **\*\*Facilities are expected to contribute staff for training at other sites – *quid pro quo*\*\***
- Transient learning curve/productivity loss
- Staff time managing error reports
- Improvements in documentation and service capture → **revenue**





Demo Patient

1 20-Mar-1947 (57) F

GENERAL 22-Feb-2005 13:48

LAMER, CHRISTOPHER CLAYTON

Primary Care Team Unassigned

Postings

CAD



## Medications

View Action

Action	Outpatient Medications	Expires	Status	Last Filled	Refills Rem...	
	AMOXICILLIN= 250MG CAP Qty: 1 for 1 days Sig: TAKE TWO CAPSULES BY MOUTH ONCE FOR INFECTION TREATMENT; TAKE UNTIL FINISHED	Feb 04,06	Active	Feb 03,05	2	
	METFORMIN= 500MG (PLAIN) TABS Qty: 60 for 30 days Sig: TAKE ONE TABLET BY MOUTH TWICE A DAY TAKE WITH FOOD FOR DIABETES TREATMENT	Nov 13,05	Active	Nov 14,04	11	
	CARBAMAZEPINE= 200MG TAB Qty: 60 for 30 days Sig: TAKE ONE TABLET BY MOUTH TWICE A DAY	Aug 21,05	Active	Jan 24,05	0	
	ASPIRIN= 325MG TAB,E.C. Qty: 30 for 30 days Sig: TAKE ONE TABLET BY MOUTH DAILY - DO NOT CHEW	Mar 19,05	Active	Feb 17,05	0	
	AEROCHAMBER SPACER WITH MASK (MEDIUM) Qty: 1 for 30 days Sig: USE AEROCHAMBER WITH INHALER AS DIRECTED	Mar 19,05	Active	Feb 17,05	0	
	AEROCHAMBER SPACER WITH MASK (LARGE) Qty: 1 for 30 days Sig: USE AEROCHAMBER WITH INHALER AS DIRECTED	Mar 19,05	Active	Feb 17,05	0	
	AEROCHAMBER DEVICE WITH MASK (SMALL) Qty: 1 for 30 days Sig: USE AEROCHAMBER WITH INHALER AS DIRECTED	Mar 19,05	Active	Feb 17,05	0	
	COAL TAR SHAMPOO 5% (PENTRAX) Qty: 236 for 30 days Sig: SHAMPOO TO AFFECTED AREA DAILY (MASSAGE INTO WET HAIR/SCALP. RINSE)	Mar 19,05	Active	Feb 17,05	0	
	SPACER (TUBE) Qty: 1 for 30 days Sig: 1 ADAPTER WITH INHALER AS DIRECTED	Mar 18,05	Active	Feb 16,05	0	
	BENADRYL-MAALOXXYLOCAINE 1:1:1 Qty: 30 for 30 days Sig: TAKE 5 ML (1 TSP) BY MOUTH AS DIRECTED	Mar 18,05	Active	Feb 16,05	0	
	BUTALBITAL,APAP, CAFFEINE TABS Qty: 1 for 1 days Sig: TAKE 1 TABLET BY MOUTH EVERY 4 HOURS IF NEEDED	Mar 17,05	Active	Feb 15,05	0	
	SODIUM CHLORIDE SOL., NASAL SPRAY (45ML) Qty: 45 for 30 days Sig: SPRAY 1 SPRAY INTO EACH NOSTRIL TWICE A DAY	Mar 17,05	Active	Feb 15,05	0	
	IPRATROPIUM/ALBUT MDI <14.7GM> Qty: 14.7 for 30 days Sig: INHALE 1 PUFF BY MOUTH EVERY 6 HOURS SHAKE WELL BEFORE USING	Mar 15,05	Active	Feb 13,05	0	

Action	Inpatient Medications	Stop Date	Status



# Current and Upcoming Enhancements

- EHR Suicide Reporting Form
- EHR version 1.1
- Pharmacy Counseling Macro
- Behavioral Health Components
- Referred Care (RCIS) Components



# Suicide Reporting Form

- Agency initiative to reduce suicide
- 2006 GPRA performance indicator
  - Establish baseline data using SRF
- Data collection form for suicide & suicide related events
  - Completions, attempts, serious ideation
- Suicide form available via RPMS menu, Patient Chart, and now EHR
- Data exports via AMH



Demo,Raven Danielle	F	DOB 10/15/1970	Age 35	HRN 12253	SSN 517-27-4391
---------------------	---	----------------	--------	-----------	-----------------

Local Case Number:	<input type="text"/>	Provider:	<input type="text" value="TEST,DOCTOR"/>
Date of Act	<input type="text" value="1/25/2006"/>	Community Where Act Occurred:	<input type="text"/>

Relationship Status:	<input type="text" value="MARRIED"/>	Education Level:	<input type="text" value="COLLEGE GRADUATE"/>
Employment Status:	<input type="text" value="FULL-TIME"/>		

Self Destructive Act:	<input type="text" value="ATTEMPT"/>	Previous Attempts:	<input type="text" value="1"/>
Location of Act:	<input type="text" value="HOME OR VICINITY"/>		

Lethality:	<input type="text" value="MEDIUM"/>
Disposition:	<input type="text" value="IN-PATIENT MENTAL HEALTH TREATMENT (VOLUNTARY)"/>

Method	Substance Use	Contributing Factor(s)	Narrative
<input type="checkbox"/> Gunshot	<input type="checkbox"/> Carbon Monoxide		
<input type="checkbox"/> Hanging	<input checked="" type="checkbox"/> Overdose		
<input type="checkbox"/> Motor Vehicle	<input type="checkbox"/> Unknown		
<input type="checkbox"/> Jumping	<input type="checkbox"/> Other:		
<input type="checkbox"/> Stabbing/Laceration			

Overdosed Using

Substance Name

ALCOHOL

ACETAMINOPHEN (E.G. TYLENOL)

Add

Edit

Delete

Clear



# EHR v1.1

- Improved medication management
- Clinical indication for lab orders
- Problem list ordering & prioritization
- Service association sets (CPT etc)
- Improved patient ed documentation
- Documentation of refusals
- Other CRS-related documentation
- More . . . .



# Med Management Enhancements

- Improved readability of medication list
  - Shading of alternate rows
  - Resize, hide columns for more space
- Default retrieval range 180 days
  - Selectable to 1000 days
- Filterable by Active or Chronic status
- Select and “process” multiple meds in sequence



# Med Management Enhancements

- Hover help for Hold reason
- Providers can discontinue Held meds
- Providers can discontinue Expired meds
  - Expired meds retain Chronic Med flag unless renewed/copied to new order
  - Discontinued meds lose Chronic Med flag
- Changes in Expired status rules
- Formatted printable medication lists





Active Only Chronic Only 180 days

Print...

Process...

New...

Action	Chronic	Outpatient Medications	Status	Issued	Last Filled	Expires	Refills Remaining	Rx #	Provider
	✓	FUROSEMIDE 40MG TAB** Qty: 30 for 30 days Sig: TAKE ONE TABLET BY MOUTH EVERY MORNING TO HELP CONTROL BLOOD PRESSURE OR EXCESS FLUID	Not Picked Up	10-Mar-2006		11-Mar-2007	3	1626311	USER,POWER
	✓	FUROSEMIDE 20MG TAB** Qty: 30 for 30 days Sig: TAKE ONE TABLET BY MOUTH EVERY MORNING TO HELP CONTROL BLOOD PRESSURE OR EXCESS FLUID	Expired	31-Mar-2006	31-Mar-2006	30-Apr-2006	0	1626314	USER,POWER
	✓	ACETAMINOPHEN 325MG TAB Qty: 60 for 30 days Sig: TAKE TWO TABLETS BY MOUTH BEFORE MEALS AND AT BEDTIME TO RELIEVE PAIN OR FEVER	Expired	03-Mar-2006	10-Mar-2006	02-Apr-2006	0	1626308	USER,POWER
	✓	LISINOPRIL 20MG TAB** Qty: 30 for 30 days Sig: TAKE ONE TABLET BY MOUTH ONCE EACH DAY TAKE FOR BLOOD PRESSURE	Active	31-Mar-2006	31-Mar-2006	01-Apr-2007	11	1626315	USER,POWER
		DILTIAZEM 30MG TAB Qty: 90 for 30 days Sig: TAKE ONE TABLET BY MOUTH THREE TIMES A DAY	Active	31-Mar-2006	31-Mar-2006	01-Apr-2007	3	1626313	USER,POWER
		NIFEDIPINE 30MG XL TAB Qty: 60 for 30 days Sig: TAKE TWO TABLETS BY MOUTH DAILY TO HELP CONTROL BLOOD	Expired	10-Feb-2005	10-Feb-2005	11-Feb-2006	3	1626307	USER,POWER

Action	Inpatient Medications	Status	Stop Date

Notifications Cover Sheet Prob/POV Services Notes Orders Medications Labs Hlth Maint D/C Summ Reports Consults

USER,POWER

DEMO.CIAINFORMATICS.COM

DEMO HOSPITAL

17-May-2006 18:20



User Help

**Claw, Beth**  
 217183    05-Apr-1995 (70)    F

Visit not selected  
 USER,POWER



File View



Active Only   Chronic Only   180 days

Print...

Process...

New...

Action	Chronic	Outpatient Medications	Status	Issued	Last Filled	Expires	Refills Remaining	Rx #	Provider
	✓	UREA 20% CREAM Qty: 1  Sig: APPLY LIBERAL AMOUNT TO AFFECTED AREA EVERY DAY	Pending						
	✓	NIFEDIPINE 30MG XL TAB Qty: 60 for 30 days  Sig: TAKE TWO TABLETS BY MOUTH DAILY TO HELP CONTROL BLOOD	Active	10-Feb-2005	30-Aug-2005	11-Feb-2006	1	1626307	USER,POWER
		HYDROXYCHLOROQUINE 200MG TAB** Qty: 60 for 30 days  Sig: TAKE ONE TABLET BY MOUTH TWICE A DAY TO HELP CONTROL	Active	31-Aug-2005	31-Aug-2005	01-Sep-2006	3	1626314	MANAGER,SYS...
		ACETAMINOPHEN 325MG TAB Qty: 30 for 30 days  Sig: TAKE ONE TABLET BY MOUTH ONCE EACH DAY TO RELIEVE PAIN OR FEVER	Expired	29-Apr-2005	29-Apr-2005	29-May-20...	0	1626308	MANAGER,SYS...
		PSEUDOEPHEDRINE 60MG TAB Qty: 120 for 30 days							

Action	Inpatient Medications	Status	Stop Date

Cover   Orders   **Meds**   Notes

USER,POWER   DEMO.CIAINFORMATICS.COM   DEMO HOSPITAL



**Claw,Beth**

217183

05-Apr-1935 (70) F

**Visit not selected**

USER,POWER



File View Action



Active Only

Chronic Only

180 days

Print...

Process...

New...

Action	Chronic	Outpatient Medications	Status	Issued	Last Filled	Expires	Refills Remaining	Rx #	Provider
		UREA 20% CREAM Qty: 1 Sig: APPLY LIBERAL AMOUNT TO AFFECTED AREA EVERY DAY	Pending						
		NIFEDIPINE 30MG XL TAB Qty: 60 for 30 days Sig: TAKE TWO TABLETS BY MOUTH DAILY TO HELP CONTROL BLOOD PRESSURE	Active	10-Feb-2005	30-Aug-2005	11-Feb-2006	1	1626307	USER,POWER
		HYDROXYCHLOROQUINE 200MG TAB** Qty: 60 for 30 days Sig: TAKE ONE TABLET BY MOUTH TWICE A DAY TO HELP CONTROL ARTHRITIS	Active	31-Aug-2005	31-Aug-2005	01-Sep-2006	3	1626314	MANAGER,SYS...

Action	Inpatient Medications	Status	Stop Date

Cover

Orders

Meds

Notes

USER,POWER

DEMO.CIAINFORMATICS.COM

DEMO HOSPITAL



### Restrict Medication Activity



**Show only medications active within the last  
(1-1000 days):**

180

OK

Cancel





# Medication Order



NIFEDIPINE TAB,SA

Dosage

Complex

Dosage

60MG

30MG

30MG

Route

ORAL

ORAL

Schedule

QDAY

☐ PRN

Q4H

Q5MIN

Q6H

Q72H

Q8H

QAM

QDAY

Comments:

Days Supply

30

Quantity

60

Refills

3

Pick Up

☐ Clinic

☐ Mail

☒ Window

Priority

ROUTINE

☐ Chronic Med

☒ TO HELP CONTROL BLOOD PRESSURE

NIFEDIPINE TAB,SA 30MG

TAKE TWO TABLETS BY MOUTH DAILY TO HELP CONTROL BLOOD PRESSURE

Action

☒ None

☐ Change

☐ Renew

☐ Refill

☐ Hold

☐ D/C

Details...

Skip

Quit



NIFEDIPINE TAB.SA

Dosage **Complex**

Dosage	Route	Schedule
60MG	ORAL	QDAY <input type="checkbox"/> PRN
30MG	ORAL	Q4H
60MG		Q5MIN
		Q6H
		Q72H
		Q8H
		QAM
		QDAY

Comments:

Days Supply	Quantity	Refills	Pick Up	Priority
30	60	3	<input type="radio"/> Clinic <input type="radio"/> Mail <input checked="" type="radio"/> Window	ROUTINE

☐ Chronic Med  
☒ TO HELP CONTROL BLOOD PRESSURE

NIFEDIPINE TAB.SA 30MG  
TAKE TWO TABLETS BY MOUTH DAILY TO HELP CONTROL BLOOD  
PRESSURE

Action

☐ None

☒ **Change**

☐ Renew

☐ Refill

☐ Hold

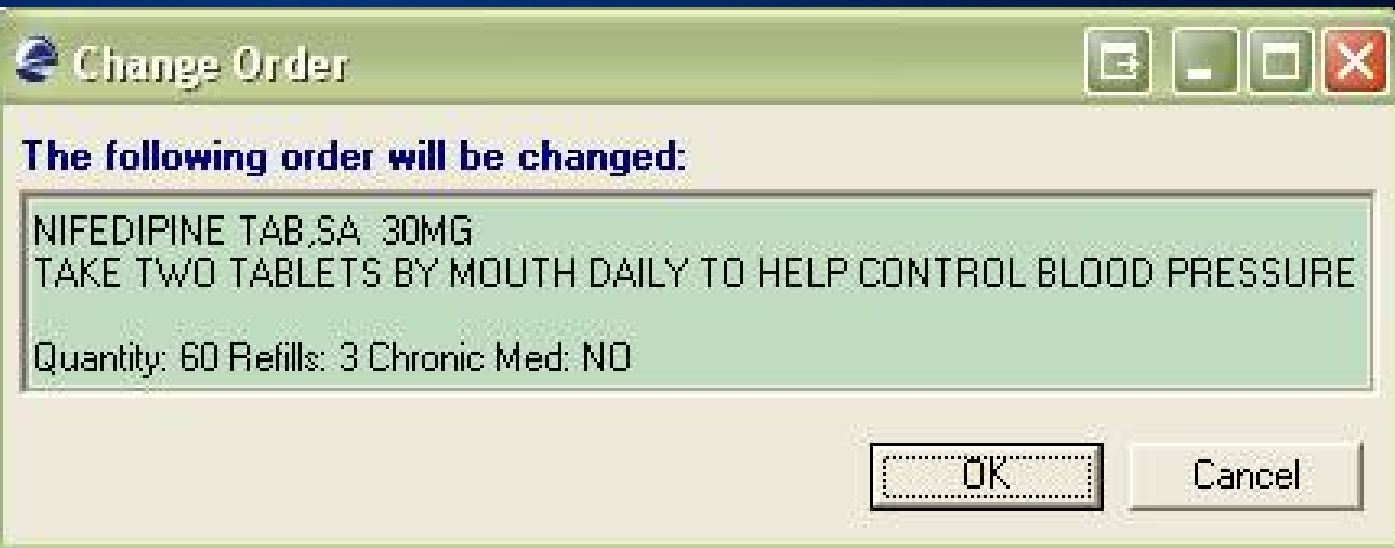
☐ D/C

Details...

Change

Quit









Active Only Chronic Only 180 days

Print...

Process...

New...

Action	Chronic	Outpatient Medications	Status	Issued	Last Filled	Expires	Refills Remaining	Rx #	Provider
	✓	FUROSEMIDE 40MG TAB** Qty: 30 for 30 days Sig: TAKE ONE TABLET BY MOUTH EVERY MORNING TO HELP CONTROL BLOOD PRESSURE OR EXCESS FLUID	Not Picked Up	10-Mar-2006		11-Mar-2007	3	1626311	USER,POWER
	✓	FUROSEMIDE 20MG TAB** Qty: 30 for 30 days Sig: TAKE ONE TABLET BY MOUTH EVERY MORNING TO HELP CONTROL BLOOD PRESSURE OR EXCESS FLUID	Expired	31-Mar-2006	31-Mar-2006	30-Apr-2006	0	1626314	USER,POWER
	✓	ACETAMINOPHEN 325MG TAB Qty: 60 for 30 days Sig: TAKE TWO TABLETS BY MOUTH BEFORE MEALS AND AT BEDTIME TO RELIEVE PAIN OR FEVER	Expired	03-Mar-2006	10-Mar-2006	02-Apr-2006	0	1626308	USER,POWER
	✓	LISINOPRIL 20MG TAB** Qty: 30 for 30 days Sig: TAKE ONE TABLET BY MOUTH ONCE EACH DAY TAKE FOR BLOOD PRESSURE	Active	31-Mar-2006	31-Mar-2006	01-Apr-2007	11	1626315	USER,POWER
		DILTIAZEM 30MG TAB Qty: 90 for 30 days Sig: TAKE ONE TABLET BY MOUTH THREE TIMES A DAY	Active	31-Mar-2006	31-Mar-2006	01-Apr-2007	3	1626313	USER,POWER
		NIFEDIPINE 30MG XL TAB Qty: 60 for 30 days Sig: TAKE TWO TABLETS BY MOUTH DAILY TO HELP CONTROL BLOOD	Expired	10-Feb-2005	10-Feb-2005	11-Feb-2006	3	1626307	USER,POWER

Action	Inpatient Medications	Status	Stop Date



**Print Medication List**  

Days to Retrieve:

☐ Active Only ☐ Chronic Only

List Detail

☒ Brief ☐ Detailed



Adverse Reactions: No Allergy Assessment

Medication	Prescriber	Status	Refills Left
UREA 20% CREAM Qty: 1 Sig: APPLY LIBERAL AMOUNT TO AFFECTED AREA EVERY DAY		Pending	
NIFEDIPINE 30MG XL TAB Qty: 60 for 30 days Sig: TAKE TWO TABLETS BY MOUTH DAILY TO HELP CONTROL BLOOD PRESSURE	USER,POWER	Active	1
HYDROXYCHLOROQUINE 200MG TAB** Qty: 60 for 30 days Sig: TAKE ONE TABLET BY MOUTH TWICE A DAY TO HELP CONTROL ARTHRITIS	MANAGER,SYSTEM	Active	3
ACETAMINOPHEN 325MG TAB Qty: 30 for 30 days Sig: TAKE ONE TABLET BY MOUTH ONCE EACH DAY TO RELIEVE PAIN OR FEVER	MANAGER,SYSTEM	Expired	0
PSEUDOEPHEDRINE 60MG TAB Qty: 120 for 30 days Sig: TAKE ONE TABLET BY MOUTH FOUR TIMES A DAY AS NEEDED TO RELIEVE STUFFINESS	MANAGER,SYSTEM	RTS	0



Adverse Reactions: No Allergy Assessment

Medication	Chronic	Status	Issued	Last Filled	Expires	Refills Remaining	Prescriber	Rx #
UREA 20% CREAM Qty: 1 Sig: APPLY LIBERAL AMOUNT TO AFFECTED AREA EVERY DAY	Yes	Pending						
NIFEDIPINE 30MG XL TAB Qty: 60 for 30 days Sig: TAKE TWO TABLETS BY MOUTH DAILY TO HELP CONTROL BLOOD PRESSURE	Yes	Active	10-Feb-2005	30-Aug-2005	11-Feb-2006	1	USER,POWER	1626307



# Pharmacy Education Macro

- Designed for med pickup encounters to facilitate documentation of counseling



Medication Counseling

Patient Context Details:

Name	DOB	HRN
Demo,Mother R	02-Sep-1957	3423

Visit Context Details:

Provider	Date of Visit	Time of Visit	Location
USER,DEMO	01-Jun-2006	12:41	PHARMACY

**NOTE: This form is designed for use ONLY by pharmacists in documenting medication counseling at the time refills are dispensed. No other use is intended.**

Purpose of Visit:

☒ V65.49 - Counseling,Nec

☐ V65.19 - Person Consult Another Person

Counseling Topic	Comprehension	Time
<input checked="" type="checkbox"/> M-Information	GOOD	1
Comment: Talked about lisinopril		
<input type="checkbox"/> M-Patient Literature		
<input type="checkbox"/> M-Follow-Up		
<input type="checkbox"/> M-Medication Dispense To Proxy		
<input checked="" type="checkbox"/> M-Drug Interaction	FAIR	1
Comment: Possible interaction with COX-2 inhibitors		

OK Cancel

Creates a visit

Populates pre-set POV

Enter standard medication counseling patient education





# Problem List Component

The screenshot shows a 'Problem Maintenance' dialog box. At the top, it has a title bar with a close button. Below the title bar, there are fields for 'Problem ID' (containing 'SOUC-4') and 'Priority' (a spinner set to '2', with a legend showing '1 - high' and '5 - low'). To the right of these fields are 'Cancel' and 'Save' buttons. Below this, there is a text field for 'ICD' containing 'Chronic Obstructive Asthma, Unspecified' and a button with three dots. A note below this field states: '(NOTE: If the ICD is not selected it defaults to .9999 - Uncoded Diagnosis)'. Below the ICD field is a text area for 'Narrative' containing the word 'Asthma'. To the left of the narrative field is a 'Date of Onset' field containing '01/31/2006' and a button with three dots. To the right of the date field is a 'Status' section with four radio buttons: 'Active Problem' (selected), 'Personal History', 'Inactive Problem', and 'Family History'. At the bottom, there is a table with four columns: 'Note #', 'Narrative', 'Date', and 'Author'. Below the table is a large text area for 'Notes'. At the very bottom are two buttons: 'Add Note' and 'Delete Note'.

**Problem Maintenance**

Problem ID: SOUC-4 Priority: 2 1 - high 5 - low Cancel Save

ICD: Chronic Obstructive Asthma, Unspecified ...  
(NOTE: If the ICD is not selected it defaults to .9999 - Uncoded Diagnosis)

Narrative: Asthma

Date of Onset: 01/31/2006 ...

Status:  
☒ Active Problem ☐ Personal History  
☐ Inactive Problem ☐ Family History

Note #	Narrative	Date	Author
Notes:			

Add Note Delete Note

- Group problems using decimals
- Assign temporary priorities



# Patient Education Component

The screenshot shows a software window titled "Edit Patient Education Incident" with a close button (X) in the top right corner. The window is divided into two main sections. The left section contains the following fields and controls:

- Education Topic:** A text box containing "Asthma-Home Management" with "(Asthma)" below it. To the right is a small icon button with three dots.
- Type of Training:** Two radio buttons: "Individual" (selected) and "Group".
- Comprehension Level:** A dropdown menu showing "GOOD".
- Length:** A text box followed by "(min)".
- Comment:** A large empty text area.
- Provided By:** A text box containing "USER, DEMO" with a small icon button with three dots to its right.
- Status/Outcome:** Three radio buttons: "Goal Set", "Goal Met", and "Goal Not Met". Below them is an empty text box.
- Historic Event:** A checkbox that is currently unchecked.
- Event Date:** A text box with a small icon button with three dots to its right.
- Location:** A text box with a small icon button with three dots to its right.
- Facility Type:** Two radio buttons: "IHS Facility" (selected) and "Other".

The right section of the window contains several buttons and a text area:

- Save** button.
- Cancel** button.
- Display Outcome & Standard** button.
- Patient's Learning Health Factors:** A label above a text box containing "Readiness To Learn-not Ready".



# Personal Health Component



Personal Health:		Add:
<b>Pediatric Data:</b>	Birth Weight=8 lbs-4 ozs (3.74 kg); Birth Order=2; Formula Started=2M; Breast Stopped=10w; Solids Started=1Y; Mother=Demo, Female A	
<b>Infant Feeding:</b>	JAN 17, 2006: 1/2 & 1/2 Breast And Formula DEC 18, 2005: Mostly Breastfeeding	
<b>Asthma Status:</b>	JAN 17, 2006: Severity=Moderate Persistent; FEV=97; ETS=Yes; Mgt. Plan=Yes NOV 20, 2005: Severity=Mild; FEV=97; ETS=Yes	



# Service Association Sets

**Super-Bills:**

Display: ☐ Freq. Rank ☐ Code ☐ Description Cols: 2

Dressing-wound  
Historical Service  
Immunization Sup  
Injections Supert  
Nurse Superbill  
**Ob Gyn Superbill**  
Optometry  
Ortho

☐ Amniocentesis  
☐ Biopsy Of Cervix With Scope  
☐ Biopsy Of Uterus Lining  
☐ Biopsy Of Vagina  
☐ Bx Of Vulva Or Perineum (each Addnl  
☐ Bx Of Vulva Or Perineum (one Lesion)  
☐ Bx Or Local Excision Of Cervix  
☐ Destroy Vulva Lesions (simple)  
☐ Diaphragm Or Cervical Cap Fitting  
☐ Endocer Curettage W/ Scope  
☐ Fetal Contraction Stress Test  
☐ Fetal Non-stress Test  
☐ I & D Bartholin's Abscess  
☐ I & D Vulva Or Perineal Abscess  
☐ Insert Foley Catheter  
☐ Insert Intrauterine Device  
☐ Insert Pessary Or Other Device  
☐ Insertion Of Cervical Dilator  
☐ Irrigation Of Vagina And/or Applicatio  
☐ Measurement Of Post-void Residual l  
☐ Removal Of Contraceptive Capsules  
☐ Removal Of Intrauterine Device (iud)

**Items to Save**

Save Cancel

Add	Data Type	Data Record
<input checked="" type="checkbox"/>	CPT	DEBRIDE INFECTED SKIN
<input checked="" type="checkbox"/>	CPT Modifier	MULTIPLE TRANSPORTS
<input type="checkbox"/>	Education Topic	BL-PATIENT INFORMATION LITERATURE
<input type="checkbox"/>	ICD Procedure	DRAIN APPENDICEAL ABSC
<input checked="" type="checkbox"/>	ICD Procedure	INJECT/INFUSION BRM AS AN
<input checked="" type="checkbox"/>	Transaction	AB ELUTION(RBC).EA ELUTION



# Behavioral Health Components

- Full Behavioral Health System functionality
  - Visit Entry, Administrative Entry, Group, Suicide Reporting
  - Comparable to IHS Patient Chart
  - Integrated with EHR
  - Order entry for prescribing BH providers
  - TIU notes for documentation
  - Testing beginning 02/2006



Group Encounter Documentation

CROW HO

Primary Provider

TEST,DOCTOR

...

Program:

CHEMICAL DEPENDENCY

Group Name:

Wednesday Evening AA Group

Clinic:

ALCOHOL AND SUBSTANCE

...

Encounter Location:

CROW HO

...

Type of Contact:

OUTPATIENT

...

Encounter Date:

1/25/2006

Arrival Time:

6:00:00 PM

Community of Service:

...

Activity:

GROUP TREATMENT

...

Activity Time:

60

Group Data | Patients | Patient Data

Secondary Providers

Name	
DEMO,LARRY	

Add

Delete

POV (Primary Group Topic)

Code	Description	
27	ALCOHOL DEPENDENCE	

Add

Edit

Delete

S/O/A/P (Standard Group Note)

Wednesday AA group.  
Guest Speaker George Washington.  
Video presentation on Medical Effects of Alcohol.

CPT Codes

Code	Description	
T1007	ALCOHOL&/SUBSTANCE ABUSE SERVICES	

Add

Delete



# Referred Care Information System

- New RCIS version (4.0) just released
- EHR components in development
  - List view of referrals (by patient, by provider, or by other filters)
  - Entry of new referrals
  - RCIS reports



Demo,Raven Danielle	F	DOB 10/15/1970	Age 35	HRN 12253	SSN 517-27-4391
---------------------	---	----------------	--------	-----------	-----------------

Est. Begin Date:	2/1/2006	Est. End Date:	2/28/2006	Est. No. of Visits:	1
------------------	----------	----------------	-----------	---------------------	---

Referral Type

☒ CHS

☐ In House

☐ IHS

☐ Other

Patient Type

☐ Inpatient

☒ Outpatient

Enter Inpatient/Outpatient Detail Information

Requesting Provider:

TEST,DOCTOR

...

Initiated Date:

1/25/2006

▼

Priority:

Requesting Facility

CROW HO

...

Purpose of Referral:

Evaluation of arrhythmia

▲

▼

ICD Diagnostic Categories

Code	Description	Notes

◀

▶

Pertinent Medical Findings:

35 y/o F with 3 ER visits for palpitations. One EKG showed possible PSVT.

▲

▼

CPT Procedure Categories

Code	Description	Notes

◀

▶

Notes to Scheduler:

Schedule within 1 month if possible

▲

▼

Outside Vendor Referred To

BROWN,JOHN MD

...

☒ Additional Medical Information

Days to schedule from today:

0

▲

▼

Payor

IHS

▼

DRG:

...



# Preparation for EHR



# EHR Planning & Implementation



Please note that this is just a general timeline of how long it might take for your site to implement EHR. Every site will be different, and the amount of time it takes to implement EHR depends upon many factors, including size of the facility, services offered at the facility, current state of RPMS and packages installed and utilized.

\* Most sites contract for external resources to complete pharmacy file preparation.





# Preparation for EHR

- Required documentation
  - Site Survey
  - Tracking Record
  - Cost Survey
- Submit to EHR Program through Area EHR Contact
- RPMS system up to current levels
- Hardware/network assessment & acquisitions as needed



# Organizational Transformation

- **Multidisciplinary EHR Team**
  - Includes administration, clinical, HIM, business office, pharmacy, IRM, others
- **Develop shared vision for the role RPMS and EHR will play in supporting care**
- **Examine legacy business processes**
  - Why do we do it that way?
  - How might it have to change?
  - Realign processes to be less paper driven



# Organizational Transformation

- Departments take ownership of RPMS packages
  - Assigning user keys and privileges
  - Responsibility for data quality and integrity
  - Running reports
- Discover the leaders
  - Who are the natural super-users?
  - Who is most excited, energized, visionary?
  - Assign CAC functions or hire a CAC



# Organizational Transformation

- Site Metrics
  - What do we want to improve with EHR?
  - What is at most risk with EHR?
  - Establish baseline and measure continuously
- Optimize use of current RPMS
  - Scheduling – no paper appointment books
  - Immunization – point of care entry, no blue sheets
  - Laboratory – no interim/cumulative reports
  - Pharmacy – paperless refill option



# Organizational Transformation

- Develop plans for documentation
  - CRS performance measures
  - Who will document what, and where?
- Implementation plan
  - Keep it simple at first
  - Start with the easiest locations
  - Start with the easiest functions
  - Create a critical mass of EHR users
  - No turning back – DO NOT STOP the rollout



# Clinical Application Coordinator

- Highly recommended for all facilities
  - Part-time to multiple FTE depending on size
  - Area/Regional CAC to support small sites
- CAC skills –
  - Clinical background
  - Computer skills
  - Good “people” person
  - Good trainer (especially of doctors)



# The Role of the CAC

- Setup of EHR
  - Documentation templates
  - Quick orders
  - Locally developed reminders
  - ICD and CPT pick lists (with coders)
- Training of new users
- Refreshers and training on updates
- Troubleshooting and hand-holding



**GIVE ME  
MORPHINE!  
GIVE ME SOMETHING  
TO KILL THE  
PAIN! I CAN'T  
STAND IT ANYMORE!**

I SEE THE  
COMPUTER  
TRAINING CLASSES  
FOR THE DOCTORS  
HAS BEGUN..

HOSPITAL





# National EHR Training & Support

- **Lessons Learned – 1 day overview**
  - Warm Springs, Cherokee, Fort Defiance, Lame Deer
  - Send 3-4 key leaders
- **CAC/Implementation Team training**
  - 1 week in Albuquerque
  - Send 4-6 key players
- **On-Site EHR Setup**
  - Business process review, EHR software configuration
- **Various specialty training sessions**
  - Techies, HIM, advanced CAC, etc.
- **Periodic web-based update sessions**



# Shared EHR Training & Support

- Activities transitioning from National to Area
- On-Site EHR Setup (usually National)
  - Some Areas may elect to conduct Setup sessions
- Super End-User Training
  - Visiting clinician, 3 days intensive EHR training
- Go-Live assistance
  - Hand-holding, troubleshooting ~1<sup>st</sup> week of go-live
- Other assistance depending on local needs
- *National program can assist with identifying faculty for these events as Area builds capacity*



# Special Issues

- Third Party Pharmacy Applications
- Laboratories and the Reference Lab Interface
- Scanning and Imaging



# EHR and 3<sup>rd</sup> Party Pharmacy

- EHR is part of an integrated system (RPMS) derived from VHA (VistA)
- Provider orders go through ordering package (OE/RR)
- Orders are checked against allergies (ART), labs, other drugs, with notification to provider if needed
- Once finished, med orders become completed prescriptions in Pharmacy



# EHR and 3<sup>rd</sup> Party Pharmacy (cont'd)

- 3<sup>rd</sup> party Pharmacy apps do not interface with OE/RR or Pharmacy, affecting:
  - Computerized provider order entry
  - Order checks
  - Medication list management
- RPMS Point of Sale offers pharmacy revenue recovery comparable to 3<sup>rd</sup> party
  - Integrated with RPMS Pharmacy
- Some sites using 3<sup>rd</sup> party Pharmacy do dual entry by pharmacy staff



# Laboratory and Reference Labs

- EHR transmits orders to and displays results from Laboratory package
- Send-outs to reference labs currently come in on paper
- Bi-directional Reference Lab Interface will be released in Lab Patch 21
  - Results from Quest & LabCorp will populate the Lab package
  - Sets standard for other reference laboratories



# Scanning and Imaging

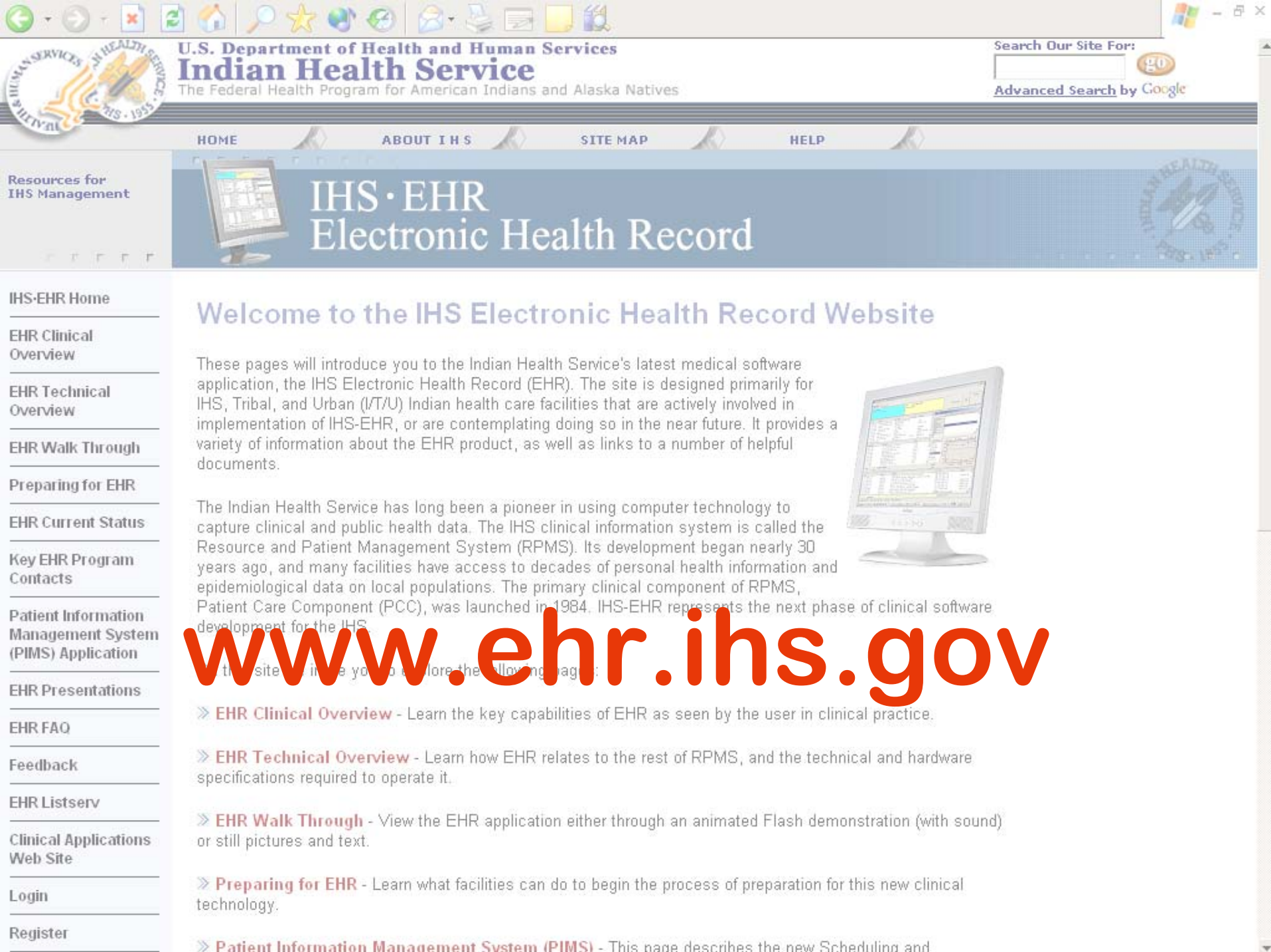
- EHR GUI allows text data entry and retrieval from RPMS packages
- Images, drawings, outside documents are not supported
- Requires separate imaging program
  - Scan in documents and link to TIU notes
- VistA Imaging is anticipated solution
- Other commercial options may be suitable for some sites



# Keys to EHR Success

- Executive Leadership involved from DAY 1
- HIM engaged early in process
- Workstations everywhere
- Train, Train, Train – department specific
- Implement gradually by function
- Liberal use of Quick Orders
- Identify who enters GPRA/CRS data and where
- Regular refreshers & updates
- Strong CAC support
- Active QI program





Resources for  
IHS Management



## IHS · EHR Electronic Health Record



[IHS-EHR Home](#)

[EHR Clinical  
Overview](#)

[EHR Technical  
Overview](#)

[EHR Walk Through](#)

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## Welcome to the IHS Electronic Health Record Website

These pages will introduce you to the Indian Health Service's latest medical software application, the IHS Electronic Health Record (EHR). The site is designed primarily for IHS, Tribal, and Urban (I/T/U) Indian health care facilities that are actively involved in implementation of IHS-EHR, or are contemplating doing so in the near future. It provides a variety of information about the EHR product, as well as links to a number of helpful documents.



The Indian Health Service has long been a pioneer in using computer technology to capture clinical and public health data. The IHS clinical information system is called the Resource and Patient Management System (RPMS). Its development began nearly 30 years ago, and many facilities have access to decades of personal health information and epidemiological data on local populations. The primary clinical component of RPMS, Patient Care Component (PCC), was launched in 1984. IHS-EHR represents the next phase of clinical software development for the IHS.

This site will introduce you to explore the following pages:

» **EHR Clinical Overview** - Learn the key capabilities of EHR as seen by the user in clinical practice.

» **EHR Technical Overview** - Learn how EHR relates to the rest of RPMS, and the technical and hardware specifications required to operate it.

» **EHR Walk Through** - View the EHR application either through an animated Flash demonstration (with sound) or still pictures and text.

» **Preparing for EHR** - Learn what facilities can do to begin the process of preparation for this new clinical technology.

» **Patient Information Management System (PIMS)** - This page describes the new Scheduling and



THE INDIAN HEALTH SERVICE

# Discussion



Superior Health Information Management  
Now and for the Future